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The Week at a Glance

CARLOADINGS: The total for the January 30 week was 660 thousand cars—up only 6 per cent over last year and down 1.6 per cent from the preceding week. The Ohio flood undoubtedly had a depressing effect on the total.

EQUIPMENT ORDERS: To Canada goes the palm for rolling stock and motive power orders this week—contracts for 30 engines and 3,600 freight cars having been placed. In the U. S. the week's totals include 41 passenger cars, 327 freight cars and 11 locomotive tenders. Mexico came through with a contract for 50 freight cars. New inquiries for the week include 1,300 freight cars, 80 milk cars and, for Canada, one locomotive. New York City is inquiring for 150 new subway cars, earlier bids for this equipment having been rejected.

N.O.I. 665 MILLIONS: Net railway operating income of Class I roads in 1936 was 665½ millions—an increase of 168 millions over '35. On property investment, 1936 income was a return of 2.57 per cent, as compared with 1.92 per cent in '35. Total operating revenues were over 4 billions, compared with less than 3½ billions in '35, and operating expenses rose by 338 millions. The rate of return of the Eastern roads was 3.2 per cent; Southern roads, 2.5 per cent; Western roads, 1.9 per cent. Net railway operating income in December was up 55 per cent over December, 1935.

PRAISE R.R. LABOR PEACE: Numerous newspaper editors, taking a look at the industrial war in shipping and automobiles, have paused to praise the railroads, the railway unions and the Railway Labor Act for the peace that prevails on the rails. The leading editorial herein examines the basis for this praise. Do actual conditions warrant it? Is collective bargaining victorious on the railroads, or is it on the way out? This business of being held up as a "model," as the editorial points out, may be a little embarrassing unless, somehow, one can learn how to live up to the reputation which is given him.

C.T.C. ON THE T. & P.: Centralized traffic control installation on 15 miles of single track between Texarkana, Ark., and Springdale, Tex., described herein, is the first section of a 90-mile project to facilitate train operation on territory handling 28 scheduled trains daily, and to overcome difficulties caused by trains being bunched during morning and evening hours. The installation includes a new type of C.T.C. control machine made up of units to facilitate making additions.

SIX-HOUR BILL: The bill to reduce the working day on the railroads to six hours (except in the many cases where it is less) has been introduced in the House by Representative Crosser of Ohio, a favorite stooge for such labor jobs. Dis-patchers are omitted, but will be dealt with

in a separate bill. The union executives have correctly complained that railroaders have been done out of work by long hours of highway employees; so now they are going to make everything right by increasing the differential to which they have objected. If that makes sense, and 12 minus 6 is a smaller handicap than 12 minus 8; then let's make the schools quit teaching our kids such nonsense as arithmetic.

C. G. W. STRIKE THREAT: The President has appointed an emergency board to investigate the dispute between the train and engine service brotherhoods and the Chicago Great Western, thus averting for the time being a strike over overtime compensation claimed by the unions, which the federal court ordered the trustees not to pay.

WATER CARRIERS: Senator Wheeler of Montana has reintroduced as S. 1400 the bill to regulate water carriers and Senator Loneragan of Connecticut has introduced as S. 1356 the long-and-short-haul clause repealer, already sponsored in the House by Representative Pettengill.

LONDON STATION: The C. N. R.'s new station at London, Ont.—embodying several novel features—is described herein. Area under platform tracks serves as main waiting room and concourse; grade crossing elimination is also involved.

MOVE TO MERGE: The first important step toward further consolidations was taken last week when the C. & O. applied to the I.C.C. for authority to acquire direct control of the Nickel Plate and Erie from affiliated holding companies. Details of the proposed transaction are given herein.

SKI TRAIN SLUMP: The first one-day snow train excursions of the season out of New York to the nearby Berkshires and Catskills were operated by the New York Central and the New Haven last Sunday, while the Boston & Maine has operated several and the Reading one (out of Boston and Philadelphia, respectively). Sales of sports wear showed that the customers were all set to swamp the snow trains this year, but Old Man Winter has been as niggardly with ice and snow as he has been generous with rain and fog.

VIRGINIAN LABOR CASE: The Supreme Court heard this week oral argument in the case wherein the Virginian is contesting the constitutionality of the Railway Labor Act. Following an election certified by the National Mediation Board the district court decreed that the A. F. of L. unions are entitled to represent the road's shop craft employees. The carrier contends on appeal that one-third of these employees are in the back shop and are not engaged in interstate commerce; and furthermore that the sections of the labor act compelling recognition of the unions are unconstitutional.

HIGH SPEED BRAKES: The results of extended tests of the high speed "AHSC" brakes of the U. P.'s streamliners "Los Angeles" and "San Francisco" are set forth in an article herein—giving basic scientific data on a matter of pressing importance in the development of modern passenger rolling stock.

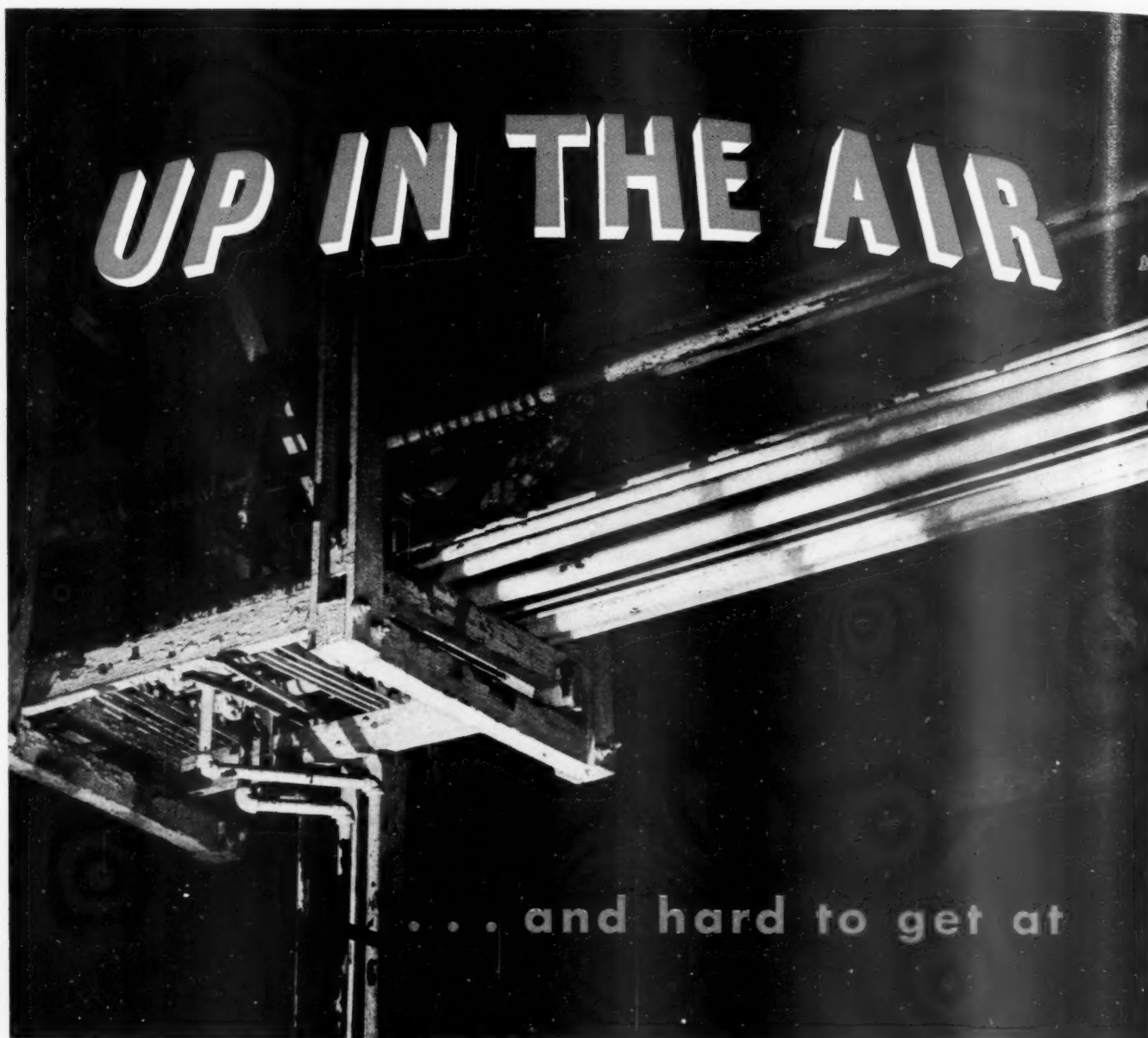
FREIGHT TRANSPORT COST: The Bureau of Statistics of the I.C.C. has issued a study of the average costs of handling various kinds of carload freight over varying distances. A review of this study is published elsewhere herein, in which the Commission is quoted to the effect that figures given in the study (based on 1935 operations) will not be admissible in rate proceedings.

DO DAMS CAUSE FLOODS?: A reader suggests that the dams which the Army Engineers have been building with such a lavish hand to aid navigation are a direct cause of the increasing severity of floods. These dams slow down the current and cause stream bottoms to silt up. Thus the stream gets higher and higher—and levees must perpetually mount. This process, naturally, can't go on forever; but until the Army Engineers and other public spenders learn that, our floods are going to continue getting worse and worse.

RIVER'S JOB IS DRAINAGE: Nature designed the rivers for drainage and if, in our political zeal for navigation and hydro-electric power, we attempt to thwart the rivers in their primary function of drainage—then we are going to suffer. In tearing out dams, deepening channels and straightening them—making faster currents to prevent silting, in our correspondent's opinion, lies the only real hope of ultimate victory over floods. What is the opinion of our engineering readers?

"TIME" RAILROADS: In case you missed it—the news weekly Time (February 8) had a friendly "inside" story on the railroads and publicized it on the front cover with a shirtsleeves photograph of J. J. Pelley. "Railroad workers," says Time with its usual discernment, "are not exhausted youngsters from the nerve-shattering assembly lines of modern manufacture, but seasoned men. . . ." The excellent impression the railways have been making in their relations with the public has perhaps nowhere been so strikingly reflected as in this article in a magazine noted for its reportorial thoroughness.

RESEARCH A BUSINESS BUILDER: One of the large manufacturers of railway materials, which directed its energies to research and development work during the depression, reports that last year 70 per cent of the orders it received were for its depression-born developments. Competitive business of as well as from the railways—or any other industry—is stimulated by research and development (including sales methods and statistical analysis) as it can be by no other method.



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Do Railway Labor Relations Deserve Their Good Reputation?

Despite the excessive demands of organized railway labor for higher wages, shorter hours, pensions and various "make-work" measures, it is nevertheless a fact that relations between the organization executives and railway managements have probably never been closer or more friendly than they are at the present time. Thus, however great may be the differences in opinion, there is a substantial basis for the hope and expectation that all differences may be peaceably reconciled. For this situation the railway industry, railway employees and the public owe a great debt of gratitude to the men who represent the point of contact between the industry and its organized employees.

Being a "Model" Is a Tough Assignment

The harmony and mutual respect which prevail between railway managements and labor executives stand out in strong contrast to the industrial warfare still continuing in the automotive industry, just ended in shipping, and threatening to break out in other large industries. The contrast has been noted by many publicists; and the railways, the labor executives and the legislative measures controlling their negotiations have been receiving rather fulsome praise in some sections of the press. The railways and the railway unions are being held up as models of the virtues of truly democratic collective bargaining.

That there is a sound basis for the esteem which the railway industry and the railway unions have won for their conduct of labor relations, no one can deny. Yet there is no time when an individual or an institution stands in such great need of critical self-examination as when others are heaping praises upon him—and that generalization is certainly true of labor relations in the railroad industry. Specifically, for instance, if this highly-praised collective bargaining in the railway industry is such an unmitigated success, why is it that the labor organizations are seeking such a small proportion of their objectives by this process? Having achieved general recognition of the principle of collective bargaining, the railway unions in recent years have largely neglected to avail themselves of it in their effort to improve their economic status. Instead, until quite recently, they have relied almost exclusively on political action.

In legislatures in many states "full crew" and train limit bills are being pushed to the limit by railway labor lobbyists and, of course, in some states such legislation is already on the statute books. If the labor relations machinery in the railway industry deserves anything like the praise which it has been getting in the press, why should legislators be called upon to give so much of their time to the consideration of specific proposals for changing the working conditions of railway labor? Why a six-hour-day bill in Congress, to take up that body's time when it has already by legislation provided machinery for the adjudication of such a demand?

It is a well-known fact that the labor organizations went directly to Congress with their pension proposals. They did not even seek a conference with managements to try to arrive at an agreement which might have made legislation unnecessary. Now, to be sure, since the constitutionality of the pension law is doubtful, they have, at the instance of the President, been discussing pension proposals with representatives of management. Aside from that, about the only question which the labor organizations appear to be willing to entrust entirely to collective bargaining is the matter of wage rates. (And here obviously political action is not possible if the higher paid employees wish to maintain their differentials, because the vote of a section hand is just as important to a politician as that of a locomotive engineer; hence the fixing of specific wage rates will probably never be voluntarily surrendered to Congress by the "Big Five".)

Getting Unjust Concessions Jeopardizes Deserved Ones

The moral strength of collective bargaining lies in its basis in reason and the fact that negotiations are conducted by men who are fully familiar with the facts with which they are dealing. If the union executives are seeking some change, both they and the management representatives with whom they deal have a pretty clear idea in their own minds as to the justice of the goal for which they are contending. If it is a scheme to put an extra man on freight trains, the union representatives, as well as the management, know very well that the proposal has nothing to do with safety and is in reality little more than a "racket." On the other

hand, if the proposal has to do with some safety measure, the management representatives, even while they may at first oppose it because of its cost, nevertheless know deep down within themselves that there is justice in the demand. Out of such conferences come agreements upon changes which actually improve employees' conditions where such improvement is most needed; and unreasonable demands which might do employees more harm than good, in the long run, usually are discarded.

In contrast, what is the basis of changes in working conditions brought about by political methods? As anyone can see, justice enters in not at all. The legislator is concerned solely with placating pressure groups. The justice or economic wisdom of any measure for class legislation is no concern of his, and he has no expert knowledge as to the wisdom of a proposal, even should such a consideration occur to him. Thus, when collective bargaining is abandoned for political methods, the labor organizations are apt to secure measures to which they know themselves they are not entitled—while they shut the door to many improvements in conditions which in justice they ought to have but which the railroads, impoverished by political "rackets," are unable to concede.

If costly industrial warfare is to be avoided, this country stands in the greatest need of an object lesson in friendly labor relations. The railway industry has been pointed out as the one which can provide that object lesson. Does not that fact put upon both railway managers and railway labor executives a heavy burden of responsibility of a kind to evoke their very deepest patriotism? Organized labor is on the ascendent. That being true, nothing is so necessary to its continued progress as an example of public responsibility which will win public acclaim and public confidence. If the old and respected railway labor unions fail to give evidence of such responsibility to a very high degree, then what confidence will the public be likely to have in some of the newer enterprises of organized labor?

Have Equipment Builders' Employees No Friends?

The railways are just emerging from a terrific depression with large accumulations of under-maintenance to be made up. They need many new cars and locomotives, not only to accommodate increasing business, but to meet the demands of the public for modern equipment at a time when the railways no longer have a monopoly. Employees of manufacturers of railway equipment and materials have suffered from unemployment, on the average, far more than railway employees have. Must not the railway unions, if they are to keep the reputation they have for social responsibility, recognize the present needs of the railways for heavy maintenance and equipment expenditures and bear them constantly in mind in the preparation of their program for improved conditions for their members?

Railroad employment has increased by about 200,000

since the low point of the depression. In some locations and in some jobs all available furloughed men have been recalled and new employees are being hired. The six-hour day, "full crew" legislation and train limit bills might temporarily make additional work for some employees, but it would have the effect of putting an almost complete stop to catching up with back maintenance and re-equipping the roads with modern rolling stock. The ultimate net effect of such measures could not in the long run be otherwise than to reduce railroad employment—and particularly in those activities which are working out so happily now toward modernizing the industry. Surely, if the railway unions are to be accredited with social responsibility, they will not seek to take so much now that the railways will not be able to complete their modernization. Surely they will not press demands which would put an end to re-employment in the railway equipment industry.

Endangering Settlement of Pension Question

From our acquaintance with railway employees, we believe there is scarcely any question effecting their status which is of greater interest to them than the matter of pensions; and it would be a great shame if "make work" legislation and unjustifiable wage increases were pressed to the point where railway managements could not afford to continue these negotiations in a liberal frame of mind. There are many "old heads" on the railroads who in justice to themselves and the industry ought to be retired, and there are also many furloughed employees whom such retirements would restore to the payroll. Compared to the pension situation, the desire for a shorter work day, extra men in crews and higher wages, is trivial. For the labor organizations to seek them, or managements to grant them—thereby jeopardizing the adjustment of the pension situation—is comparable to a gift of jewelry to a family on relief. However, if the matters of difference between managements and labor are left to collective bargaining, and not sought through politics, we shall have no fear of the outcome. Sensible and just improvements in conditions will be made and the "rackets" will go into the discard. Everybody concerned will be happier and better off, for decisions based upon justice and reason, arrived at by mutual agreement, bring lasting satisfaction such as no unjust advantage insecurely held by political force can ever bring.

The eyes of the public are on the railway industry and its labor executives. How they conduct themselves during the next year or two may mean everything to orderly progress throughout our economic system—and certainly there can be no question but that public opinion as regards organized labor is now a direct charge upon the railway labor organizations. Knowing railroad men as we do, we do not believe they will fail in the responsibility which now rests upon them—provided they are thoroughly awakened to the fact that the responsibility really does lie with them.

The New Station at London, Ont.,
Showing the Baggage Wing at
the Right



New Passenger Station Has Interesting Features

Structure built by the Canadian National at London, Ont. employs multiple-track rigid-frame construction to carry platforms and tracks over sub-level concourse — Result is particularly effective

AS a part of a large program of improvements at London, Ont., a city of approximately 70,000 population about 220 miles west of Toronto, the Canadian National has built a new passenger station which, while typical in many respects of modern station construction of moderate size throughout the eastern part of the United States and Canada, incorporates several features of interest which have proved both effective and economical. The station is one story high, is well proportioned and attractive in appearance, and, withal, is thoroughly utilitarian.

The most unusual feature of the station layout is the carrying of five passenger tracks immediately behind the station building proper on a rigid-frame, reinforced concrete structure with a clear span of 35 ft. 10 in., below which the area has been laid out, furnished and decorated as the main waiting room and concourse of the station. This structure has a minimum deck slab thickness of 30 in., and carries the track rails without ties or ballast. As a result, considerable economy in construction was effected. At the same time, the gracefully curved intrados inherent in the rigid-frame design afforded a basis for a most pleasing concourse interior.

Another feature of interest in the station layout is the arrangement of the baggage and express facilities in wings flanking the main body of the station. These facilities have their trucking platforms and driveways exposed to the main approach to the station, and yet the treatment employed is such as not to detract from the pleasing appearance of the station as a whole.

Restrained Classic Architecture

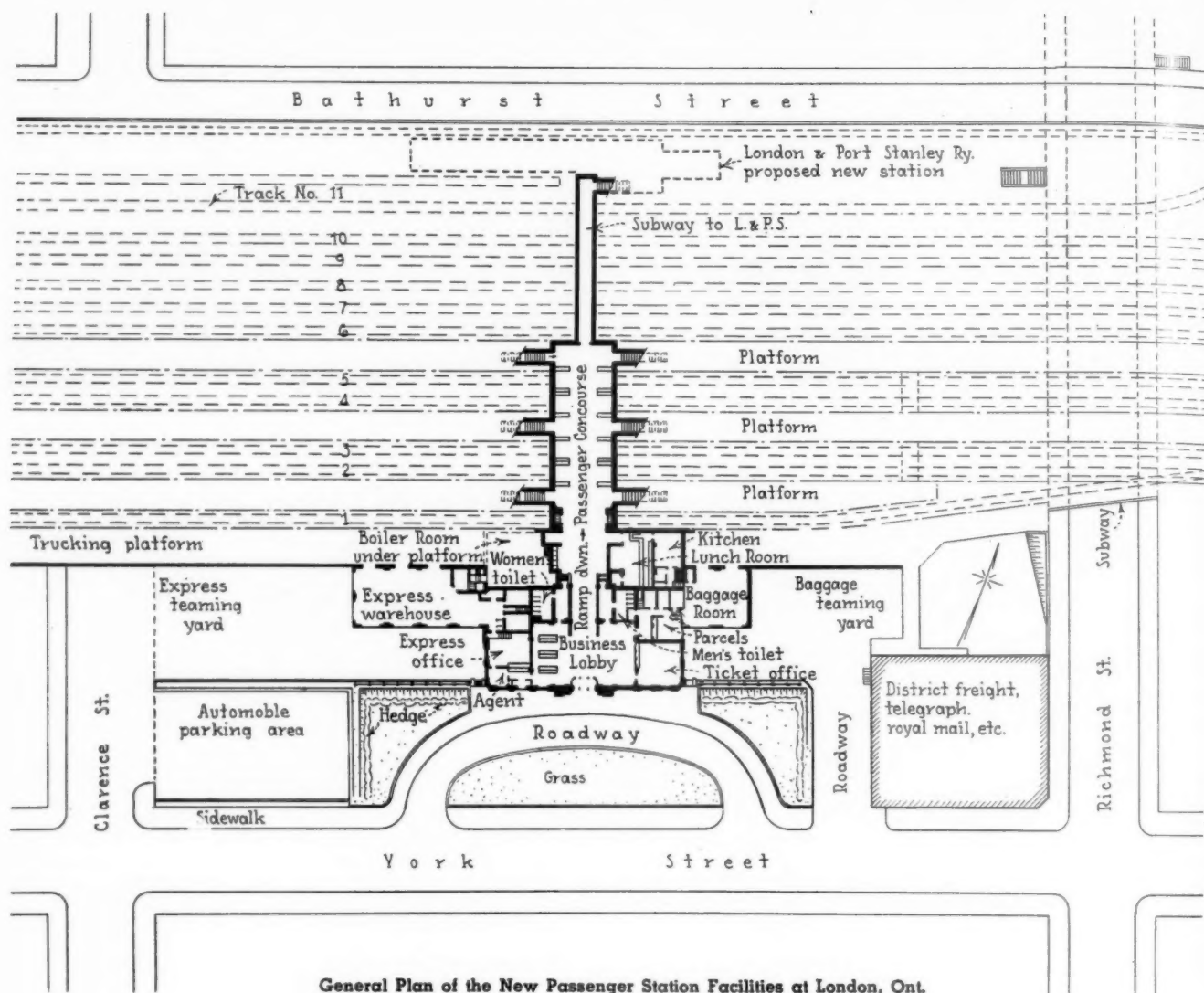
The new station is a part of a project which calls for the eventual elimination of seven grade crossings through grade separation, and the closing of six additional crossings. To date, track elevation has been carried out

through and beyond the station area for a distance of approximately 1,500 ft., and two street subway structures have been constructed, one carrying 11 tracks and the other 12 tracks.

The new station, which is located on practically the same site as the old building, is set back approximately 74 ft. from the street line of York street, about midway between Richmond and Clarence streets, the former passing beneath the tracks, while the latter is closed at the railroad. The building itself, which faces north, is essentially a single-story structure, with a central section 120 ft. across the face, rising to a maximum height of 30 ft., and with flanking wings on the east and west sides 82 ft. and 42 ft. long, respectively. These wings, which are set back 39 ft. from the main face of the building, have a higher foundation level than the main body of the building, and a lower roof level, which gives them the subordinated aspect desired.

The building has a concrete foundation, and is of steel frame construction with hollow tile filled exterior walls, reinforced concrete floors and a reinforced concrete roof slab, insulated on top with one inch of cork and waterproofed with built-up, gravel-surfaced pitch and felt roofing. The exterior treatment of the building follows modern restrained Classic lines, employing face brick in a range of dark browns, and Canadian limestone for pilaster facing and for base courses, copings and cornice, which are carried completely around both the station proper and the adjoining wings.

The main entrance to the station, centrally located in the front face of the building, has been made the most dominant and pleasing feature of the exterior, consisting of a broad, high, rectilinear opening, enclosed by glass and a white metal grille above a group of three glazed doors with frames and sash also of white metal. Adding prominence to the entrance are wide flanking pylons in limestone, terminated at the top in sculptured



General Plan of the New Passenger Station Facilities at London, Ont.

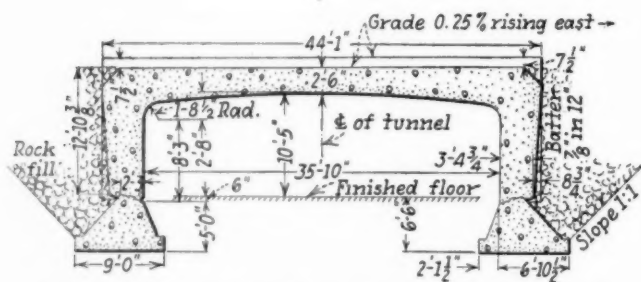
plaques symbolizing on the one hand, "Commerce," and on the other, "Engineering." The wings are in harmony with the main central portion of the building, except that to serve their functions, each is provided with rolling steel shutter-type doors across its front face.

Giving prominence and setting to the station are its broad landscaped station grounds, which extend from Clarence to Richmond streets; a semi-circular concrete driveway and walk which approach the main entrance; and shrub-topped terraces which, in effect, pedestal the two wings and partially obscure the driveways which serve these units. Immediately east of the station is a large parking area for taxis and the private cars of patrons, while at the extreme west end of the station grounds, located directly on the property line of York

street, is a two-story brick building which houses the local division offices of the railroad. This latter facility, which provides adequately for the needs of the road for local office space, made it unnecessary to provide office facilities in the new station building.

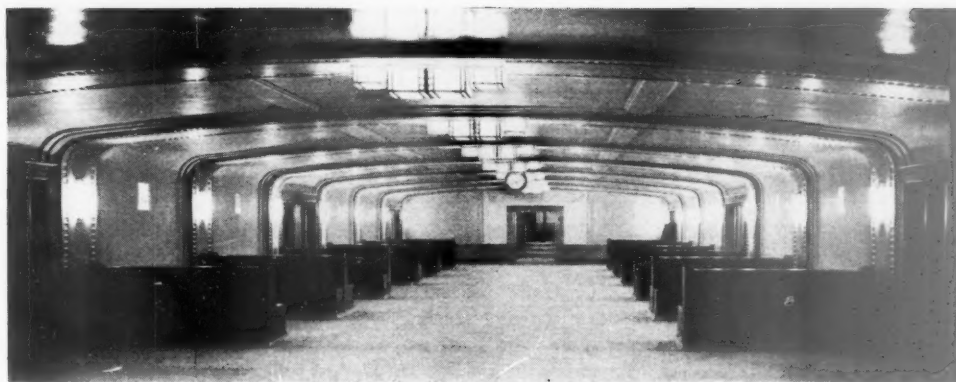
Interior Arrangement Is Effective

The interior of the station presents an effective layout, both from the standpoint of patrons and in the utilization of space. Just inside the main entrance is a glass-enclosed vestibule framed in white metal, which protrudes directly within one of the two principal areas of the station, the business lobby, a room 40 ft. wide by 64 ft. deep, with a ceiling height of 20 ft. This room, which is flanked on both sides by passenger service facilities, has a broad opening at its far, or south, end, leading to a ramp 12 ft. wide and 80 ft. long, which extends down to a waiting room and train concourse beneath the station tracks. This latter area, which is 7 ft. 9 in. below the floor level of the lobby, is 117 ft. long by 35 ft. 10 in. wide, with its walls and ceiling formed by the arch-like underside of a rigid-frame, reinforced concrete bridge carrying the passenger tracks and station platforms. The concourse is entirely free of columns and has a maximum height through the center of 10 ft. 5 in. Stairs from each side lead up to the passenger platforms and are closed off at the concourse level



Cross Section of the Rigid-Frame Structure Under the Tracks

Waiting Room and Concourse
Occupy the Rigid-Frame Structure
that Carries the Station Track and
Platform Layout



by double glazed doors with white metal frames and sash.

Extending from the south end of the concourse is a pedestrian subway, approximately 100 ft. long, which passes beneath six tracks and gives access from the concourse to a newly constructed small station of the London and Port Stanley Railway, immediately along the south side of the elevated Canadian National tracks. This subway is a reinforced concrete box structure, approximately 9 ft. wide and 7½ ft. high.

The various service facilities at the station are arranged as shown in the accompanying floor plan, with the ticket office and parcel and baggage checking room along the west side of the lobby, and the public office of the Canadian National Express along the east side. So arranged, the baggage room is immediately adjacent to and in connection with the baggage warehouse forming the west wing of the station, and the express office is in direct connection with the express warehouse forming the east wing of the station. Men's and women's wash and toilet rooms are located directly at each side at the top of the ramp leading to the concourse, with entrances from both the business lobby and the ramp. Directly above them and over the upper end of the ramp, is a mezzanine floor occupied by record rooms, a fan room and minor offices.

Midway down the ramp joining the business lobby and the concourse, on the west side, is an entrance to a lunch room and news stand, and almost directly opposite is an entrance to stairs leading to mechanical facilities located in the basement of the station. The lunch room, which is 32 ft. by 27 ft. in plan, and at a level 5½ ft. below the floor of the business lobby, meets, in its central location, the convenience of both passengers and nearby business people who use this facility. The kitchen is located immediately adjacent to the lunch room and has a service entrance direct from a station-side trucking platform above.

A feature of the facilities at the station is the atten-

tion that has been given to the detail of equipment for the convenience of patrons. Parcel lockers, telephone booths and display cases for attractive posters have been built into the walls at convenient locations, and similarly, train indicators and bulletin boards are also built-in features in such manner as to form a part of the general decorative scheme.

Decoration Is Attractive

In furnishing and decorating the interior of the station, both utilitarian and aesthetic objectives were attained by the careful selection of materials and the use of colors. The floor of the business lobby is in patterned terrazzo. The walls to a height of seven feet are faced with a vitreous granite tile in various shades of tan and brown, as are also the pilasters for their full height, and the whole is relieved by bands of colored tiles, with red and green predominating. Above the tile wainscoting, the walls are of plaster, painted to harmonize with the tilework. They are plain except for a number of plaster plaques depicting modes of transportation, and an ornamental cornice treated in polychrome.

The ceiling of the lobby is in plaster with simple paneling and ornamented accents about white metal lighting fixtures. Most of the trim throughout the interior is of Canadian birch with a dark oak finish.

The same general treatment employed in the lobby is carried down the ramp and into the concourse, except that the ramp floor is of non-slip tile and the tile wainscot in the concourse is only 2 ft. 9 in. high. A further noticeable deviation is in the ceiling of the concourse, where, unlike the relatively flat ceiling in the lobby, the segmental arch lines of the rigid-frame structure carrying the tracks have been preserved and have been ornamented by moulded arched ribs in plaster. The side walls, like the ceiling, are finished in plaster, and are ornamented between stairway openings to the track level by a series of plaques which depict the development

View of the Station from the
Track Level



of railway motive power. Lighting fixtures are of both the wall and ceiling types, in white metal and white glass.

The track layout at the station includes six through station tracks at an elevation approximately 7 ft. above the station lobby floor level, and approximately 14 ft. above the concourse floor level. These tracks are served by three low-level intermediate passenger platforms, and one trucking platform immediately along the rear of the station. The platforms, which are largely of concrete construction have a combined length of 2,100 ft., and for approximately 1,500 ft. are sheltered by steel-frame canopies with wood roof decks covered with built-up roofing. Immediately south of the station track and platform layout, there are five freight tracks, none of which interferes in any way with passenger train operation at the station.

Heating of the station and concourse is by means of two 100-hp. water-tube boilers fired with rotary-type oil burners. These units, which are located in the basement of the station, also supply steam for heating coaches and the nearby railroad office building.

Rigid-Frame Bridge Forms Concourse

Possibly the most unusual and interesting part of the new station facilities is the concourse superstructure, which, as already pointed out, is a rigid-frame, reinforced concrete structure carrying five tracks and three low-level intermediate platforms. This structure, which provides an unobstructed concourse area 35 ft. 10 in. wide by 117 ft. long, has vertical side walls and a gracefully arched underside, or intrados, which lent itself to particularly effective decorative treatment. The maximum headroom within the concourse is 10 ft. 5 in. longitudinally through the center, decreasing progressively toward each side wall with the pitch of the curved ceiling to a height of approximately 9 ft.

A feature of the structure carrying the station tracks over the concourse is that its deck has a thickness of only 30 in. at the center. This feature, combined with the fact that the track rails are laid directly on the concrete deck, without crossties or ballast, minimized the overall depth of the deck from base of rail to underside of slab, and thereby minimized the amount that the tracks had to be raised through the station area to provide suitable concourse headroom. Entirely aside from this fact and the attractive interior which this structure afforded, the fixed-frame design was considerably more economical of construction than any other type of structure which might have been built.

Details of Design

The rigid-frame structure over the concourse, while unusual for railroad loadings, is not new to the Canadian National, which has already employed this design effectively for several grade crossing elimination projects, the most recent of which was carried out at Petete Cote road, on the main line near Vaudreuil, Que. Here, as pointed out in an article in the *Railway Age* of March 24, 1934, a double-track clear span of 72 ft. 6¼ in. was involved. In spite of this sizeable span, the thickness of the deck slab at the center was held down to 3 ft. 9 in.

At the London station, the clear span involved was only 35 ft. 10 in., but the same principles of design and construction were employed. In this type structure, the deck and the abutments are monolithic, the ends of the slabs being designed to take negative bending movement which is carried into the abutments by the rigid, reinforced connections between the slab and the abutments.

Through these rigid connections, the bending movement at the center of the slab is reduced materially, permitting an appreciable reduction in the effective depth of the slab as compared with a slab simply supported at the ends.

The abutments of the structure, unlike the usual gravity-type abutments, are thicker at the top than at the bottom, tapering from a maximum thickness of approximately 4 ft. near the joint with the deck slab, to a minimum thickness of 3 ft. 4¾ in. at the base. Both abutments rest on and have keyed, hinged anchorage to massive spread footings. These footings, which are continuous throughout the width of the structure, have a rectangular base 9 ft. wide, in a horizontal plane, and battered side faces which rise to an inward sloping top face 27 in. wide, in which there is a continuous, longitudinal tongue, 5 in. wide and 1 in. high, which forms a key between the footing and the abutment wall above. The key area, which carries the entire load of the superstructure, has direct contact with the superstructure concrete, while the remainder of the joint is filled with a premoulded asphalt filler, ½ in. thick, and is made water-tight with a strip of ¼-in. by 7-in. sheet copper embedded in the concrete.

Designed for E-60 Loading

Both the superstructure of the rigid-frame structure and the footings are reinforced to resist positive and negative bending movements, and great care was exercised to insure accurate spacing of all reinforcing, both the bars and additional rail reinforcing employed in the bases of the footings. Altogether, there are 86,400 lb. of bar reinforcing in the frame, and 31,100 lb. of bar and rail reinforcing in the two footings.

The structure was designed for Cooper's E-60 load-

$$\frac{L^2}{L + D}$$
 ing, using the impact formula $\frac{L^2}{L + D}$, and assuming the

live load on each track spread over a width of 13 ft. High-early-strength concrete, developing a strength of 3,000 lb. in seven days, was used throughout in the superstructure, and standard Portland cement concrete, designed to have a strength of 3,000 lb. in 28 days, was used in the footings. Specifications required not only close control of the mix in accordance with the water-cement ratio, but also that all concrete be mechanically vibrated as placed. Altogether, 1,062 cu. yd. of concrete were employed in the structure.

Because of its width of 117 ft., with stairwell openings through the abutments on each side on the center lines of the platforms, the superstructure of the concourse structure was constructed in four sections. This not only made construction practicable, since in the fixed-frame design it is necessary to cast the deck slab and abutments as a unit, but it also permitted undisturbed passenger train operation through the station area while the construction work was under way. Sections of three widths were involved, two 43 ft. wide, one 23 ft. wide, and a fourth 9 ft. 7 in. wide. The largest sections carry two tracks, with a half section of low-level intermediate platform on each side. The 23-ft. section carries a single track with a half section of platform on each side, while the narrowest section carries only a half section of platform. Located side by side, the various sections of the structure provide for the desired track and platform layout.

The double-track deck area on the two largest sections of the structure is 23 ft. 10 in. wide, while the single-track deck area on the smaller track-carrying section is 10 ft. 10 in. wide. Each half section of platform is 9 ft. 7 in.

wide, forming together, intermediate platforms 19 ft. 2 in. wide. The stair openings through the abutments are six feet wide and are symmetrical above the center line of the platforms as a whole. Thus, one-half of each opening is formed in each of the adjoining ends of abutment sections, directly beneath the platform areas. Concrete side walls, structurally independent of the abutments but joined to them with waterproofed flexible joints, form the stairwells; the stairs themselves, in two flights, are also of concrete and independent of the bridge structure.

Through the design adopted, the thickness of the deck slab within the track areas was held down to a minimum of 2 ft. 6 in. at the center of span, increasing gradually each side of the center to a maximum thickness of approximately 3 ft. 6 in. at the rigid connections with the abutments. Through the platform areas of the deck, solely for the purpose of elevating the surface of the platforms above the level of the track area, the deck slabs are a maximum of 3 ft. 3½ in. thick at the center, with the surface pitched laterally toward the track area for drainage.

Drainage from the track area is toward one end of the structure, the deck surface being constructed on a grade of 0.25 per cent rising to the east to conform with the track grade. The deck is not surfaced or treated with any form of waterproof coating, reliance being placed on the dense, impervious character of the concrete and the pitch of the deck, against percolation through the slab. However, all concrete below ground level, including the backs of the abutment walls, was damp-proofed with two coats of asphalt emulsion.

To insure thorough drainage from behind the abutments, and at the same time to minimize any lateral earth pressure against the abutment walls, both walls, to near the base of their footings, were backfilled with rock, this material being carried back to a 1-to-1 slope on the adjacent earth fill. At the base of the rock backfill, tile drains were installed to carry off any water that might accumulate.

All joints between the separate sections of the structure proper, and, likewise, between the rigid-frame structure and the stairwell walls, were waterproofed with 7 in. by ½-in. sheets of copper, V-shaped directly in the joints, which were buried in the concrete about 3 in. below the surface. The surfaces of all of these joints, as well as of all other joints where there was to be no bond between the sections, were faced with two-ply, asphalt-impregnated roll roofing.

One of the most unusual features of the structure carrying the station tracks over the concourse is the fact that the track rails, of 100-lb. section, are set in a vertical position, on steel plates, with only thin cushion pads between the plates and the concrete deck. The plates are held in place by U-shaped anchor bolts of 1-in. bar material, which are embedded in the concrete in such manner that opposite threaded ends extend up through holes in the pads and in the plates. Two such anchor bolts, fitted with square head nuts and flat steel washers, hold each plate in position.

The rails, on the other hand, are secured to each plate by means of two 1-in. bolts, with countersunk heads. These extend up through holes in the plate on opposite sides of the rail seat. Each of these bolts is fitted with a square nut, a coil spring washer, and a simple steel rail clip, the latter resting directly on the base of the rail. In spite of this direct connection of the track rails to the deck, vibration in the structure under load is hardly noticeable, and the sound within the concourse caused by trains moving over the structure is inappreciable.

The new station facilities at London were planned

and built under the general direction of W. A. Kingsland, vice-president of the Central region of the Canadian National, C. B. Brown, chief engineer, operation, of the system, and T. T. Irving, chief engineer of the Central region. The station building design and construction were handled by J. Schofield, system architect, and R. A. Baldwin, engineer of construction of the Central region, while C. P. Disney, bridge engineer of the Central region, was in charge of the design and construction of the rigid-frame structure carrying the station tracks over the concourse.

C. & O. Would Hold Erie and Nickel Plate Directly

WASHINGTON, D. C.

INITIATING the first important step taken in several years toward carrying out the four-system consolidation plan for the eastern railroads approved by the Interstate Commerce Commission in 1932, the Chesapeake & Ohio on February 4 filed with the commission an application for authority to acquire direct control of the New York, Chicago & St. Louis and the Erie. It is proposed to acquire stock of the two roads now held by the Virginia Transportation Company, a subsidiary of the C. & O., and by the Alleghany Corporation, which indirectly controls the C. & O., sufficient to give the railroad company in its own right a numerical majority of the stock without the intervention of any of the holding companies which the Van Sweringen interests had organized in such profusion in their efforts to hold control of their railroad properties during the long period while they were seeking authority from the commission in various proceedings for a combination of their eastern holdings into one large system.

As far back as 1925 the Van Sweringen interests had sought I.C.C. approval for the acquisition of the C. & O., Erie, and Pere Marquette by the Nickel Plate but the commission objected to various features of the plan and suggested that the C. & O. should be the controlling company. The C. & O. then asked authority in 1927 to acquire the Pere Marquette and Erie but the commission denied the application as to the Erie although it allowed the C. & O. to take over the P. M., and later authorized C. & O. officers to serve also as officers of the Nickel Plate. Meanwhile the Van Sweringen interests continued to maintain control of the railroads by distributing their holdings through various railroad and holding companies while the commission was considering the four-system plan for the eastern roads, which it approved in general in 1932, finally allocating to one of the four systems practically all of the Van Sweringen eastern roads as well as some others.

Because of the depression no further steps were taken toward combining the eastern roads after the C. & O. officers had their jurisdiction extended over the Nickel Plate in 1933 and stock representing control of the Alleghany Corporation, principal holding company of the system, was sold in September, 1935, at an auction sale of the collateral held by a group of banks, to the Midamerica Corporation, controlled by George A. Ball, of Muncie, Ind. Testifying recently before the Senate committee Mr. Ball had indicated an intention of proceeding with the consolidation plans of the Van Sweringens.

The Chesapeake & Ohio proposes to exercise an option from the Alleghany Corporation to purchase 167,300 shares (49.58 per cent) of the common stock of the

Nickel Plate and 215,000 shares of the common stock of the Erie, which is approximately 10 per cent. The purchase price is \$5,065,475, or \$13.25 a share, \$4,515,475 of which has already been paid by the Chesapeake & Ohio, leaving a balance of \$550,000 which will be paid in cash, together with interest. The Chesapeake & Ohio also owns the Virginia Transportation Corporation which owns 7.44 per cent of the common stock of the Nickel Plate and 45.67 per cent of the Erie. The Chesapeake & Ohio proposes to take this stock over directly and partially liquidate the Virginia Transportation Corporation by cancellation of its stock to the extent of \$44,046,430, which is the cost to the Virginia Transportation Company of the Nickel Plate and Erie stocks. After the acquisition is completed, the Chesapeake & Ohio says, it will have the following ownership of stock in the two companies: Nickel Plate common, 192,400 shares or 57.02 per cent of its common stock acquired at a total cost of \$4,286,610, or an average of \$22.28 a share; Erie common, 984,000 shares or 65.15 per cent, acquired for \$35,116,665, or an average of \$35.659 a share; Erie first preferred, 151,504 shares, or 31.61 per cent, acquired for \$7,028,914, or \$46.42 a share; Erie second preferred 60,195 shares or 37.96 per cent, acquired for \$2,679,715, an average of \$44.51 a share. If the application is granted, the Chesapeake & Ohio will have directly under its control 9,076 miles of road or 70.6 per cent of the 12,852 miles embraced in System No. 6 as proposed by the commission. The company contends that the granting of this application will promote the simplification of its corporate structure and will bring the control of these two roads which are now controlled through holding companies directly under control of the parent company. This should result in a future saving in administration expenses and other benefits flowing from operation through common officers.

Net Railway Operating Income for 1936

WASHINGTON, D. C.

CLASS I railroads in 1936 had a net railway operating income of \$665,479,894, or a return of 2.57 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics of the Association of American Railroads. In 1935 their net railway operating income was \$497,359,578 or 1.92 per cent, and in 1930 it was \$867,450,016 or 3.36

per cent. These figures do not include those of the Louisville & Nashville for December of each year because recent flood conditions delayed that road in compiling its report.

| Class I Railroads—United States | | | | |
|--|-----------------|-----------------|-----------------|--|
| Twelve Months Ended December 31, 1936* | | | | |
| | 1936 | 1935 | 1930 | |
| Total operating revenues... | \$4,043,915,602 | \$3,443,510,112 | \$5,271,738,279 | |
| Total operating expenses... | 2,925,127,071 | 2,587,463,311 | 3,924,281,025 | |
| Taxes | 318,983,979 | 236,612,477 | 348,113,254 | |
| Net railway operating income | 665,479,894 | 497,359,578 | 867,450,016 | |
| Operating ratio—per cent.. | 72.33 | 75.14 | 74.44 | |
| Rate of return on property investment—per cent ... | 2.57 | 1.92 | 3.36 | |

* Note: Figures for Louisville & Nashville month of December each year not included.

This compilation as to earnings includes the revenues derived from the emergency rates which became effective on April 18, 1935, but expired on December 31, 1936. For the year 1935, it has been estimated that these emergency rates yielded a net of \$74,411,000, and in 1936, a net of \$118,500,000. The compilation is based on reports from 140 Class I railroads representing a total of 236,765 miles.

Operating revenues in 1936 totaled \$4,043,915,602, compared with \$3,443,510,112 in 1935, and \$5,271,738,279 in 1930, an increase of 17.4 per cent in 1936 above 1935, but 23.3 per cent below 1930. Operating expenses in 1936 amounted to \$2,925,127,071 compared with \$2,587,463,311 in 1935, and \$3,924,281,025 in 1930. Operating expenses in 1936 were 13.0 per cent greater than in 1935, but 25.5 per cent below 1930. Class I railroads in 1936 paid \$318,983,979 in taxes compared with \$236,612,477 in 1935, and \$348,113,254 in 1930.

Nineteen Class I railroads failed to earn expenses and taxes in 1936, of which seven were in the Eastern district, four in the Southern district and eight in the Western district.

Railroads in the Eastern district in 1936 had a net railway operating income of \$386,152,748, a return of 3.20 per cent on the investment. In 1935, their net was \$309,895,804, or 2.57 per cent, while in 1930 it was \$438,492,623, or 3.75 per cent. Operating revenues in the Eastern district in 1936 totaled \$2,043,338,800, an increase of 16.8 per cent compared with 1935, but a decrease of 22.0 per cent compared with 1930. Operating expenses totaled \$1,428,843,515, an increase of 13.3 per cent above 1935, but a decrease of 26.9 per cent below 1930.

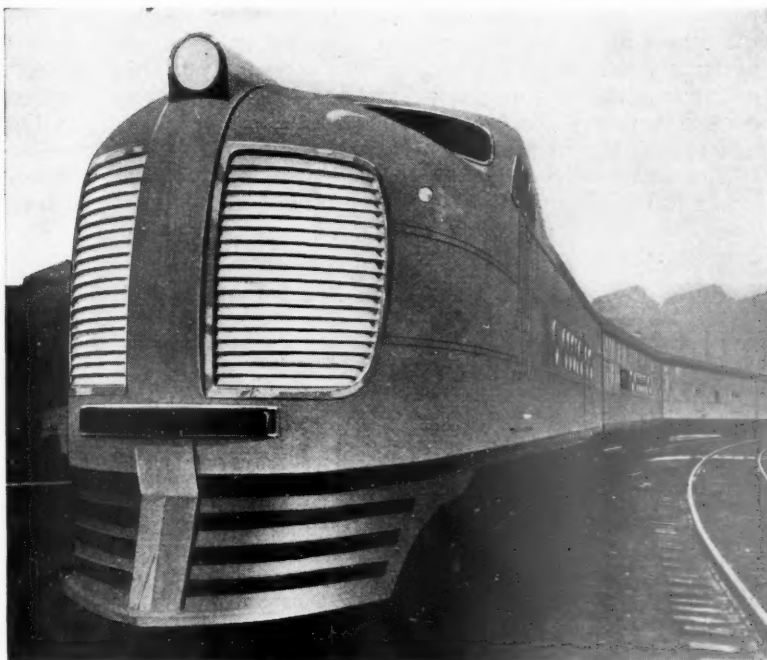
Railroads in the Eastern district in 1936 had a net of the Louisville & Nashville, had in 1936 a net railway operating income of \$78,369,102, or 2.51 per cent. In 1935, their net amounted to \$47,660,192, or 1.51 per cent, and in 1930 it was \$87,136,162, or 2.68 per cent. Operating revenues in the Southern district in 1936 amounted to \$492,085,995, an increase of 16.4 per cent compared with 1935, but a decrease of 22.3 per cent under 1930. Operating expenses totaled \$364,910,543, an increase of 8.1 per cent above 1935, but a decrease of 26.5 per cent under 1930.

Railroads in the Western district in 1936 had a net of \$200,958,044, or 1.88 per cent. In 1935, they had a net of \$139,803,582, or 1.31 per cent. In 1930 it was \$341,821,231 or 3.14 per cent. Operating revenues in the Western district in 1936 amounted to \$1,508,490,807, an increase of 18.7 per cent above 1935, but a decrease of 25.3 per cent under 1930. Operating expenses totaled \$1,131,373,013, an increase of 14.4 per cent compared with 1935, but a decrease of 23.3 per cent under 1930.

The bureau statement did not include a separate statement for the month of December. However, a brief summary issued by the Interstate Commerce Commission, omitting the Louisville & Nashville, showed a net railway operating income for the month of \$68,742,292, an increase of 54.9 per cent as compared with that for December, 1935. The roads in the eastern district had a net of \$27,353,258, an increase of 16.8 per cent; those in the western district had a net of \$25,577,509, an increase of 76.7 per cent; those in the Pocahontas region a net of \$8,934,428, an increase of 27.7 per cent, and those in the southern region, excluding the L. & N., a net of \$6,877,097. Total operating revenues for December amounted to \$363,446,431, an increase of 25.6 per cent over December, 1935; freight revenues were \$291,702,275, an increase of 27.5 per cent; passenger revenues were \$38,583,045, an increase of 14.3 per cent, and expenses, taxes, and rents amounted to \$294,704,139, an increase of 20.3 per cent.

Brake Tests on U. P. Streamliner

Tests of the A H S C brake on the "City of San Francisco" show effectiveness of deceleration control, and of general performance of the system



THE Union Pacific high-speed streamline trains "City of Los Angeles" and "City of San Francisco" are equipped with A H S C brake equipment furnished by both the New York Air Brake Company and the Westinghouse Air Brake Company. Before the "City of San Francisco" was placed in regular service it was made available on May 29, 1936, for brake-equipment tests which were conducted jointly by the two air brake companies with the cooperation of the Union Pacific. The tests were particularly intended to demonstrate the general performance of the air-brake system as a whole, the functioning of the equipment in straight-air (electropneumatic) and automatic control, and the effectiveness of the deceleration control as provided by the Decelakron. Stop-distance records were to be made to obtain actual data on the effectiveness of the brake system.

All tests were made on the Union Pacific between Omaha and Columbus, Neb. This is a distance of approximately 85 miles, and tests were made running both westward and eastward. Included in this 85-mile run were two sections of track which were staked out for the measurement of stopping distances. Two high-speed test stops were made over these measured sections running westward, and two running eastward. With the exception of these four test stops on the measured sections, all stop distances were estimated from records made of the initial speed of the train, the brake-valve manipulation, the general functioning of the Decelakron, and the approximate location of the stop in regard to mile posts. The stopping time was also obtained by several observers by means of stop watches. All data pertinent to the tests are given in Table I.

The "City of San Francisco" (described in the *Railway Age*, May 30, 1936), consists of two 1,200-hp. locomotive units of Cor-Ten steel construction and nine trailing cars of aluminum-alloy construction. The wheels on all of the vehicles were made by the Illinois Steel Company of rolled steel, oil quenched and drawn to a Brinell hardness of between 275 and 285. These wheels

have standard A.A.R. taper tread. With the vertical loading of the locomotive wheels on the worn rails in the territory involved, the bearing area should represent approximately 0.73 sq. in.

The brake shoes were all plain or non-flanged types made by the American Brake Shoe & Foundry Company, and had a Brinell hardness of 300. On the power trucks, $3\frac{3}{8}$ -in. by 11-in. shoes with an area of 37.125 sq. in. were used. On the car trucks, $3\frac{3}{8}$ -in. by 9-in. shoes with an area of 30.375 sq. in. were used.

The A H S C air-brake equipment is a modification of the standard H S C equipment which had previously been furnished for high-speed trains by both the air-brake companies. The modification consists of a rearrangement of the locomotive control units to permit the brake apparatus to be operated as a high-speed straight-air system or a conventional automatic system. The change is accompanied by the incorporation of a change-over valve as a part of the HS-4 brake valve. The change-over valve is moved by the use of the standard brake-valve handle to either straight-air or automatic position as desired. The HS-4 brake valve operates in conjunction with a BA-4 brake application valve, an EP-2 master relay, a Decelakron, and the necessary train-control apparatus. The train-control features function automatically to cause brake applications irrespective of the setting of the change-over valve.

The normal operation of the equipment on high-speed trains will usually be in straight air. During this operation, the engineer's brake valve is the means through which the engineer initiates the brake application by admitting air to a fixed-volume reservoir which allows pressure to act on the master relay to energize simultaneously the application magnets throughout the train. Releases are accomplished similarly by means of the control through the master relay.

Each car in the train, including the control units, is equipped with a No. 21 control valve and magnet valve. The No. 21 control valve is the device through which

air is admitted to the brake cylinders or released directly therefrom as pressure is developed or reduced in a straight-air pipe by operation of the application or release magnet. When the desired amount of brake application is secured, the Decelakron operates to regulate the degree of application, and to maintain a uniform rate of train deceleration. Thus, after the engineman once initiates a brake application, the Decelakron assumes control to reduce the degree of brake application and to maintain a safe margin against wheel sliding.

The initial settings of the Decelakron were as follows: (1) For minimum service applications it was set

train to the rear. Two of these wires provided a power circuit for the trainagraph, and the other two furnished the hunch and time circuit for instruments located in car No. 11.

The weight on each of the axles of the train had been determined by actual weighing at the Pullman plant. The lever ratios of the brake cylinders was calculated from drawings furnished by the Union Pacific. From these two sets of data, the braking ratio for each axle was determined. These values are shown in Table II. The braking ratio averaged 222.2 per cent for the power trucks, and 250.3 per cent for the trailing-car trucks, both

Table I—Performance Data From Road Tests of A H S C Brake Equipment on the "City of San Francisco"

| Test No. | Type of application* | Grade at stop, per cent | Initial speed, m. p. h. | Stop time, sec. | Stop distance, ft. | Stop distance corrected for grade, ft. | State of charge at beginning of test | | | Retardation, m. p. h. per sec. | | Brake cyl. pressure, lb. | | | | Shoe temp., deg. F., on truck No. | | Notes |
|---|----------------------|-------------------------|-------------------------|-----------------|--------------------|--|--------------------------------------|----------|-------|--------------------------------|------|--------------------------|-------|------|---------|-----------------------------------|--------|--------|
| | | | | | | | Front car | Rear car | B. P. | Max. | Min. | Front | | Rear | | 4 Rear | 5 Rear | |
| | | | | | | | | | | | | B. P. | S. R. | Max. | At stop | | | |
| 1 | SS-L | -0.50 | 9.7 | 8.1 | 78.5 | 70 | 112.0 | 105.0 | 110.0 | 3.4 | .. | 30.0 | 10 | 32.0 | 10.0 | .. | .. | |
| 2 | SS-L | -0.50 | 19.3 | 18.8 | 303.0 | 270 | 116.0 | 107.0 | 111.5 | .. | .. | 32.0 | 11 | 32.0 | 10.0 | .. | .. | Note A |
| 3 | SS-L | -0.50 | 39.0 | 26.6 | 808.0 | 748 | 115.0 | 108.0 | 111.0 | 2.8 | 1.8 | 47.0 | 11 | 50.0 | 13.0 | .. | .. | |
| 4 | SS-L | -0.50 | 59.8 | 36.7 | 1750.0 | 1630 | 115.0 | 107.0 | 111.0 | 2.6 | 1.8 | 78.0 | 14 | 80.0 | 13.0 | .. | .. | |
| 5 | SS-L | 0 | 77.7 | 43.8 | 2732.0 | 2732 | 112.5 | 109.5 | 109.0 | 2.2 | 1.6 | 87.5 | .. | 91.0 | 22.0 | 370 | 280 | |
| 6 | SS-S | +0.10 | 20.0 | 13.0 | 249.0 | 254 | 115.0 | 106.0 | 110.5 | 4.5 | 2.8 | 41.0 | 20 | 43.0 | 25.0 | .. | .. | Note B |
| 7 | SS-S | +0.07 | 38.2 | 17.2 | 623.0 | 630 | 116.0 | 110.0 | 113.0 | 7.0 | 4.8 | 72.0 | 15 | 75.0 | 17.0 | .. | .. | Note C |
| 22 | FS-S | 0 | 87.9 | 37.0 | 2716.0 | 2716 | 115.0 | 109.5 | 112.0 | 5.5 | .. | 97.0 | 14 | 97.0 | 16.0 | 340 | 380 | Note D |
| 8 | FS-S | +0.10 | 60.2 | 28.8 | 1597.0 | 1618 | 115.0 | 110.0 | 112.5 | 4.5 | .. | 95.0 | 11 | 95.0 | 12.0 | .. | .. | |
| 23 | FS-L | +0.14 | 70.5 | 28.2 | 1650.0 | 1674 | 114.5 | 106.0 | 110.5 | 5.0 | .. | 95.0 | 16 | 95.0 | 11.0 | .. | .. | Note E |
| 10 | FS-L | 0 | 38.9 | 15.6 | 500.0 | 500 | 111.5 | 100.0 | 106.0 | 4.4 | 3.8 | 84.0 | 14 | 79.0 | 17.0 | .. | .. | |
| 24 | SS-L | -0.14 | 84.9 | 43.3 | 3128.0 | 3070 | 115.0 | 109.0 | 111.5 | 3.5 | 2.0 | 95.0 | 11 | 95.0 | 11.0 | 250 | 220 | Note F |
| 14 | FS-S | -0.10 | 40.9 | 15.8 | 535.0 | 530 | 114.5 | 106.0 | 110.5 | .. | 3.5 | 93.0 | 22 | 93.0 | 40.0 | .. | .. | |
| 25 | SS-S | -0.15 | 88.5 | 43.7 | 3460.0 | 3390 | 112.0 | 104.5 | 108.0 | 7.0 | 3.9 | 92.0 | 21 | 94.5 | 22.0 | 360 | 285 | |
| 11 | FS-L | -0.11 | 61.0 | 26.4 | 1256.0 | 1241 | 114.0 | 102.0 | 109.0 | 4.0 | 2.8 | 91.0 | 10 | 92.0 | 17.5 | .. | .. | |
| 18 | SC-E | -0.10 | 60.7 | 23.7 | 1273.0 | 1260 | 113.0 | 104.0 | 109.0 | 6.0 | 4.8 | 90.0 | 28 | 92.0 | 40.0 | .. | .. | |
| 20 | TC-S | -0.10 | 20.3 | 10.6 | 236.0 | 227 | 98.0 | 90.0 | 93.0 | 7.0 | .. | 50.0 | 21 | 52.0 | 26.0 | .. | .. | |
| 21 | TC-C | -0.14 | 73.4 | 46.4 | 3358.0 | 3275 | 108.0 | 96.0 | 102.0 | 7.0 | .. | 55.0 | 30 | 56.0 | 35.0 | .. | .. | |
| 12 | FS-L | -0.18 | 82.6 | 36.2 | 2505.0 | 2463 | 113.0 | 105.0 | 109.0 | 5.0 | .. | 94.0 | 21 | 94.0 | 22.0 | .. | .. | |
| 16 | FS-S | -0.05 | 83.1 | 36.5 | 2585.0 | 2570 | 115.0 | 110.0 | 111.0 | 7.0 | .. | 94.0 | 50 | 95.0 | 40.0 | .. | .. | |
| 32 | AS-30 | -0.13 | 61.3 | 44.2 | 2710.0 | 2635 | 106.0 | 94.5 | 100.0 | 6.5 | .. | 85.0 | 32 | 54.0 | 54.0 | .. | .. | Note G |
| 35 | AE | +0.24 | 61.4 | 28.6 | 1592.0 | 1642 | 90.0 | 87.0 | 89.0 | .. | .. | 53.0 | 53 | 54.0 | 54.0 | 240 | 250 | Note H |
| Standing tests — Made between running tests Nos. 16 and 32. | | | | | | | | | | | | | | | | | | |
| K | AS-10 | ... | ... | ... | ... | ... | ... | ... | ... | .. | .. | 14.0 | .. | 14.0 | ... | ... | ... | |
| L | AS-40 | ... | ... | ... | ... | ... | ... | ... | ... | .. | .. | 30.0 | .. | 55.0 | ... | ... | ... | |
| M | AS-20 | ... | ... | ... | ... | ... | ... | ... | ... | .. | .. | 22.0 | .. | 24.0 | ... | ... | ... | |
| O | AE | ... | ... | ... | ... | ... | ... | ... | ... | .. | .. | 48.0 | .. | 52.5 | ... | ... | ... | |

Test Conditions:

Tests 1, 2, 3, 4, 5, 6, 7, 8, 22, and 23, inclusive were run westbound. The remainder were run eastbound.

Wind velocity was practically zero for all tests.

All stops were made over tangent track.

Original Decelakron setting: Low-pressure service—2 mi. per hr. per sec., wide open; high-pressure service—2.5 mi. per hr. per sec., wide open; and emergency—3 mi. per hr. per sec., wide open.

*Legend:

SS-L—Slow service, brake valve lapped at first Decelakron response.

SS-S—Slow service, brake valve continuously in service position.

FS-L—Fast service, brake valve lapped at first Decelakron response.

FS-S—Fast service, brake valve continuously in service position.

SC-E—Safety control emergency; straight air.

TC-S—Train control, exceeding speed limit.

TC-C—Train control, change in indication not acknowledged.

AS-30—Automatic service, application, 30-lb. reduction.

AE—Automatic emergency.

Notes:

A—Brake valve unintentionally moved to release for an instant when Decelakron operated, then back to lap.

B—Off scale with Buff at stop. Operator moved brake valve to lap for an instant.

C—After test No. 6, Decelakron setting was raised approximately 0.5 mi. per hr. per sec.

D—Off scale with Buff at stop.

E—After test No. 23, high-service setting screw turned in 1.25 turns to 2.37 in lap.

F—All temperatures on eastbound tests were taken from the tire; temperatures taken during the eastbound run were from the shoes.

G—Automatic electric operation cut out; safety control operative. Change-over to automatic position.

H—Safety control cut out.

for a retardation of 2 m. p. h. per sec. at full-open position; (2) for maximum service applications it was set for 2.5 m. p. h. per sec. at full-open position; and (3) for emergency applications it was set for 3 m. p. h. per sec. at full-open position.

Practically all of the test apparatus and test-control equipment were located in the baggage compartment of car No. 3, located to the rear of the mail compartment. This was really the first car in the train, but since each of the two locomotive units had equipment similar to that of the cars, each of these units is counted as a car, thus making an 11-car train. The equipment in car No. 3 consisted of one trainagraph, one speed-time recorder, one decelerometer, a control panel, and a time clock. Wires extended from this car to the hunch mechanism, which was located on the top of the brake valve in the engineman's cab. Four wires were run throughout the

based on a brake-cylinder pressure of 100 lb. The overall braking ratio during the test run was 238.1 per cent.

The train left Omaha and ran westward as far as Columbus, Neb. During this run the total of ten running tests were made. On the return trip 14 running and five standing tests were made.

The first series of tests were slow service electro-pneumatic applications with the brake valve lapped when the Decelakron first operated. During this series of tests, the Decelakron was set at 2 m.p.h. per sec. in slow service (under 35-lb. brake-cylinder pressure); 2.5 m.p.h. per sec. in high service (over 35-lb. brake-cylinder pressure); and 3 m.p.h. per sec. in emergency. All of these rates were the values with the Decelakron wide open. No high rates of deceleration were apparent during this series, and therefore the Decelakron setting

was raised approximately 0.5 m.p.h. per sec. immediately following test No. 6. This setting resulted in too high rates of deceleration as evidenced by the fact that a brake-cylinder pressure of 95 lb. was obtained on tests at 60 m.p.h. and over; in these cases venting did not occur until the speed had reduced to about 20 m.p.h.

Table II—Train and Braking Ratio Data

| Type of car | Truck no. | Weight ready to run, lb. | Actual lever ratio | Total shoe force | Brake ratio at 100 lb. brake-cylinder pres. | Brake shoes | | |
|--------------------------|-----------|--------------------------|--------------------|------------------|---|---------------|------------|-------------|
| | | | | | | No. per wheel | Width, in. | Length, in. |
| Power | 1 | 112,980 | 7.96 | 250,070 | 222.0 | 4 | 3 3/8 | 11 |
| | 2 | 101,960 | 7.24 | 227,360 | 223.5 | 4 | 3 3/8 | 11 |
| Power | 3 | 101,960 | 7.24 | 227,360 | 223.5 | 4 | 3 3/8 | 11 |
| | 4 | 113,540 | 7.96 | 250,070 | 220.0 | 4 | 3 3/8 | 11 |
| Mail car | 5 | 58,560 | 4.68 | 147,000 | 251.0 | 4 | 3 3/8 | 9 |
| | 6 | 56,260 | 4.78 | 150,100 | 267.0 | 4 | 3 3/8 | 9 |
| Baggage car | 7 | 64,760 | 5.37 | 168,800 | 261.0 | 4 | 3 3/8 | 9 |
| Diner-lounge | 8 | 65,540 | 5.37 | 168,000 | 258.0 | 4 | 3 3/8 | 9 |
| Sleeper | 9 | 70,980 | 5.83 | 183,000 | 258.0 | 4 | 3 3/8 | 9 |
| Sleeper | 10 | 67,540 | 5.62 | 176,600 | 262.0 | 4 | 3 3/8 | 9 |
| Sleeper | 11 | 71,460 | 6.01 | 188,800 | 265.0 | 4 | 3 3/8 | 9 |
| Sleeper | 12 | 67,800 | 5.55 | 174,300 | 257.0 | 4 | 3 3/8 | 9 |
| Coach | 13 | 62,980 | 5.20 | 163,400 | 260.0 | 4 | 3 3/8 | 9 |
| Coach-Buffer | 14 | 47,980 | 5.09 | 78,400 | 164.0 | 4 | 3 3/8 | 9 |
| Totals | | 1,064,300 | | 2,554,060 | 240-mean | | | |
| Added weight on test run | | 8,500 | | | | | | |
| Total for test | | 1,072,800 | | | 238.1-mean | | | |

Actual weight includes test equipment and supplies as follows:

500 lb. of truck No. 5.

1,500 lb. on truck No. 6.

1,000 lb. on truck No. 7.

Added load under test conditions:

50 men at 160 lb.—8,000 lb. distributed.

Test equipment—200 lb. on truck No. 13.

Buffet supplies—300 lb. on truck No. 14.

Brake cylinders:

Four 10-in. by 8-in. cylinders on trucks Nos. 1 to 13, inclusive.

Four 7-in. by 8-in. cylinders on truck No. 14.

This venting was too late to prevent a rate of deceleration near the end of the stop of about 4 m.p.h. per sec. The Decelakron was set slightly lower for the return trip from Columbus, and after the completion of the tests it was set back to the original value.

Four principle kinds of electro-pneumatic applications were used. The first consisted of slow service applications with the brake valve returned to lap when the Decelakron first responded. The second series was also slow service, but with the brake valve allowed to remain continuously in service position. The third and fourth series consisted of fast service applications with the brake valve lapped on Decelakron response, and also with the brake valve remaining continuously in service position. These tests were made in the order shown in Table I.

For running tests Nos. 32, 35, and 39, the equipment was changed over to automatic setting. The feed-valve pressure was reduced to 90 lb. for all of the automatic tests. One of these tests was a full service application from 61 m.p.h., in which the stopping distance was 2,710 ft. Another was an automatic emergency application from 61 m.p.h. which resulted in a stopping distance of 1,592 ft. Test No. 39 was made to demonstrate running releases and applications, and is not reported in detail inasmuch as it was impossible to comply with the selected program for this test, and the test was completed over track of varying grade and curvature.

In order to demonstrate the effectiveness of train control, two applications were made; one by exceeding the speed limit, and one by failing to acknowledge a change in indication. The equipment worked as intended during these tests, but the retardation rate near the end of the stop was as high as 6.5 m.p.h. per sec. During these train-control applications the hunch on the brake valve was broken manually at the proper time. This manual

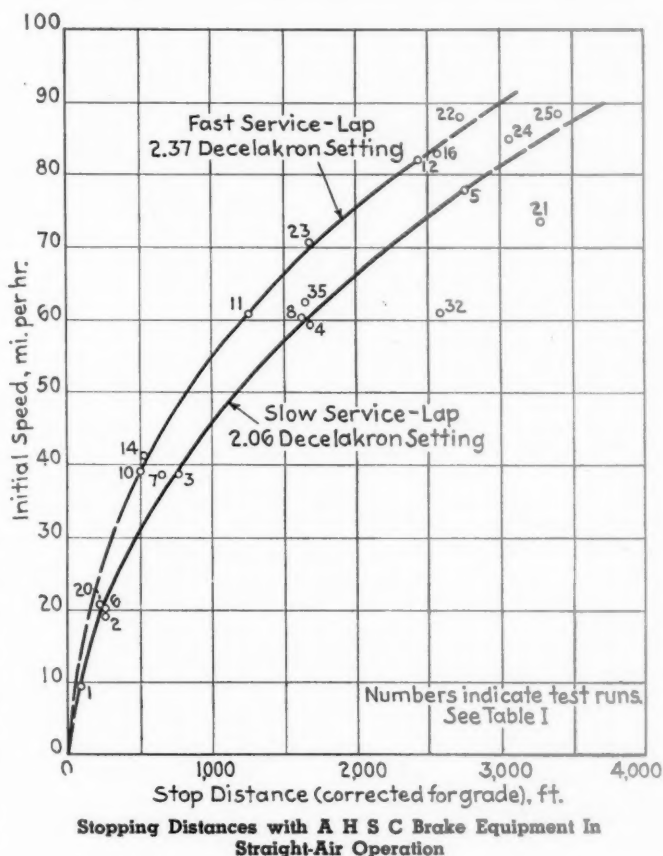
hunch was necessary because the brake-valve handle was left in release position, at least for the major part of the stopping time, in order to simulate a condition when the engineman is incapable of proper response. The operation on these tests was considered satisfactory.

The five standing tests were run to provide records of pressure development during 10-lb., 20-lb., 40-lb. and emergency reductions. The equipment functioned as intended during all of these tests.

The general results of the tests are shown in Table I.

Discussion of Test Results

Stopping distance—No complete series of tests were made under any one condition of brake-valve manipulation and Decelakron setting. For this reason it is impossible to draw accurate conclusions as to relative stopping distances obtained under each of the test conditions. There were only two series of tests which contained more than two similar tests. One series consisted of slow-service applications with the brake valve lapped at



Decelakron response, which included five tests (Nos. 1, 2, 3, 4, and 5) under the same conditions. Another series consisted of fast service applications with the brake valve lapped at Decelakron response (tests Nos. 10, 11, 12, and 23). However, these two series were made with different Decelakron settings and therefore are not directly comparable. The stopping distances for these two series were plotted as curves on the accompanying graph. The stopping distances for all the other tests were plotted on the graph as points only. The stops were approximately 15 per cent longer with slow service applications than with fast service applications, but were practically the same irrespective of whether the brake valve was lapped or remained in service throughout the stop. The stopping distance was about 7 per cent shorter with 2.37 m.p.h. per sec.

Decelakron setting than with the 2.06 setting. The stopping distance for the automatic full service reduction was 53 per cent longer than the slow straight-air service stop at the same initial speed. The automatic emergency stop was slightly shorter than the slow service straight-air stop at a similar speed.

Rates of Retardation.—The average rate of retardation was approximately 2.8 m.p.h. per sec. during all the stops. The tests during which the brake valve remained in service throughout the stop gave higher rates than when the brake valve was lapped. Automatic full service applications resulted in a maximum retardation of 4.2 m.p.h. per sec. Train-control applications gave somewhat higher values, the rates of retardation being 6.5 and 5.7 m.p.h. per sec. for tests Nos. 20 and 21, respectively. When the Decelakron was set at its original values of 2 m.p.h. per sec. for low-pressure service, 2.5 m.p.h. per sec. for high-pressure service, and 3 m.p.h. per sec. for emergency service, the average rate of retardation during the stops was approximately 2.25 m.p.h. per sec. with a maximum of 2.75 m.p.h. per sec. Since the Decelakron was set back to its original value at the end of the tests and prior to placing the train in regular service, these retardation values would be expected to prevail on the train.

Brake-Shoe Temperature and Wear.—The maximum brake-shoe temperature recorded was 380 deg. F. The wheel-surface temperature, after the high-speed stops showed a maximum value of 360 deg. F. The records of wheel and shoe temperatures were not taken on all of the tests, and therefore the values just given may have been exceeded on several occasions. The records which were taken were obtained after high-speed stops and should represent values which would be expected in service. A small amount of metal was found bonded to the wheels after the high-speed stops, but it was not enough to cause any noticeable roughness. The brake shoes were practically unworn at the start of the tests. After the tests the shoes showed very little wear and did not have complete bearing areas.

Wheel Sliding.—Accurate observations were not made for wheel sliding during the stops. However, visual observations were made just prior to several of the stops from high speed, and it was noticed that sliding occurred on truck No. 6 for about the last 2 ft. of the stop. The wheel revolution record taken on the lead axle of this truck showed no evidence that the wheels slid during any of the stops. This truck had the highest braking ratio, and therefore it would have been more likely for the wheels of this truck to slide than for those on any other truck. None of the wheels showed any slid-flat spots after the completion of the test run.

Conclusions

The general functioning of the various parts of the A H S C brake equipment was entirely as intended. The various devices responded quickly and produced the desired results. Stopping distances were within the required range and were considered satisfactory by the Union Pacific representatives present during the tests. The stopping distances compared favorably with those obtained on other high-speed trains in spite of the fact that the brake shoes on the "City of San Francisco" were not worn in sufficiently to give uniform bearing.

The Decelakron control tended to reduce high rates of deceleration, and in general performed this function satisfactorily. However, on several of the stops, particularly when the Decelakron setting was at the higher values, this device did not entirely prevent the build up of high retardation rates near the completion of the

stop. The tests showed that the highest settings advisable for general operation were 2 m.p.h. per sec. for low-pressure service (under 35 lb. brake-cylinder pressure), 2.5 m.p.h. per sec. for high-pressure service (over 35 lb. brake-cylinder pressure), and 3 m.p.h. per sec. for emergency.

A few check tests, made with the control equipment in the cab set for automatic operation, showed that reliable operation could be obtained by this means. The stopping distance with service applications was of course longer than when using straight-air control because of the slower response and the reduced brake-cylinder pressures. However, the automatic-emergency stop was slightly shorter than the stop made with straight-air service application. The retardation rates near the end of the stops were higher in automatic operation than in straight-air operation because of the lack of Decelakron control. The train-control equipment functioned properly on the two check tests made.

Although the tests were limited to one day, it was possible to make a sufficient number of tests to demonstrate that the general functioning of the A H S C brake equipment under usual operating conditions was satisfactory, and the trains containing the equipment could be released for service operation.

Freight Car Loading

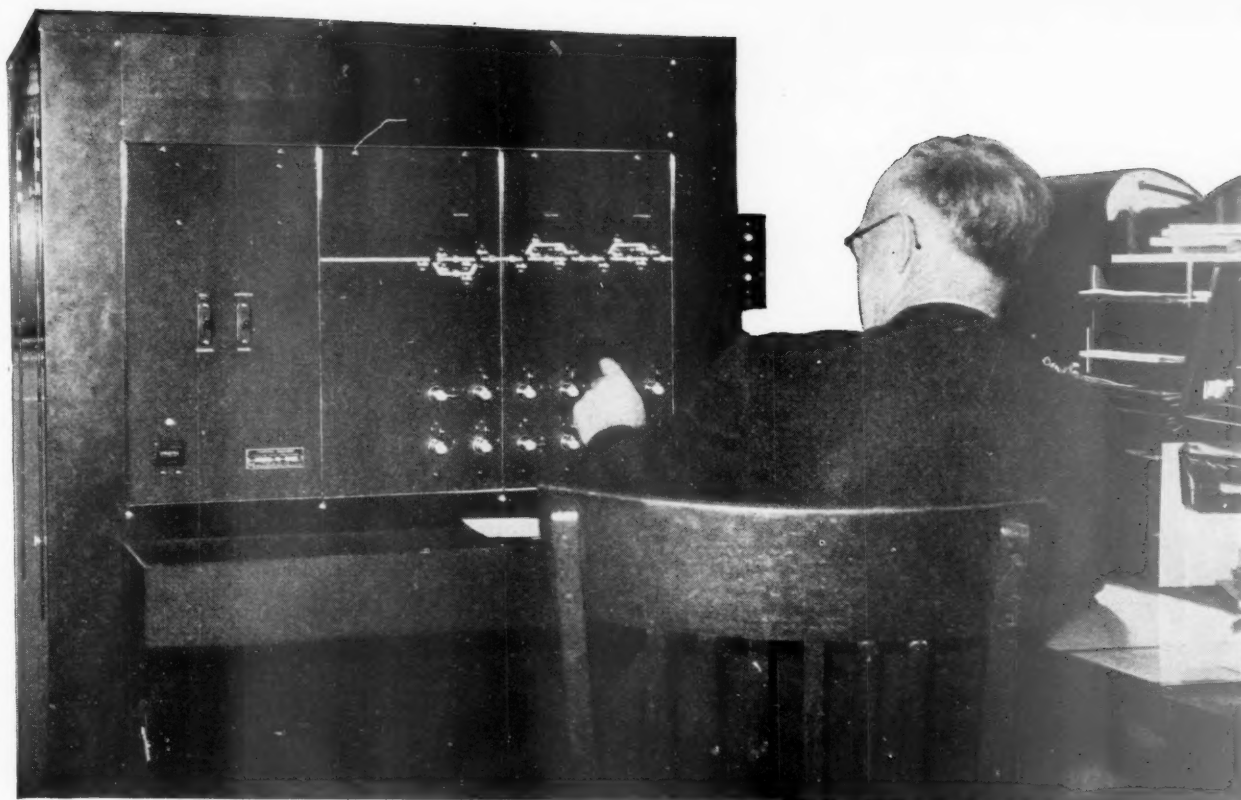
WASHINGTON, D. C.

REVENUE freight car loading for the week ended January 30 totaled 659,790 cars, a decrease of 10,586 cars or 1.6 per cent below the preceding week, an increase of 37,900 cars or 6.1 per cent above the corresponding week in 1936, and an increase of 62,829 cars or 10.5 per cent above the corresponding week in 1935. The decrease was due partially to flood conditions in the Ohio valley. All commodity classifications except coal, live stock and coke showed increases over the preceding week, and all commodity classifications except coal, grain and coke showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

| Revenue Freight Car Loading | | | | |
|-------------------------------------|-----------|-----------|-----------|--|
| For Week Ended Saturday, January 30 | | | | |
| Districts | 1937 | 1936 | 1935 | |
| Eastern | 153,521 | 148,235 | 144,586 | |
| Allegheny | 145,023 | 122,819 | 119,620 | |
| Pocahontas | 29,178 | 45,943 | 42,809 | |
| Southern | 89,530 | 89,032 | 87,498 | |
| Northwestern | 80,478 | 75,677 | 71,041 | |
| Central Western | 105,108 | 90,707 | 82,201 | |
| Southwestern | 56,952 | 49,477 | 49,206 | |
| Total Western Districts | 242,538 | 215,861 | 202,448 | |
| Total All Roads | 659,790 | 621,890 | 596,961 | |
| Commodities | | | | |
| Grain and Grain Products | 30,205 | 30,574 | 25,949 | |
| Live Stock | 12,519 | 11,788 | 14,147 | |
| Coal | 142,762 | 174,444 | 155,342 | |
| Coke | 11,670 | 11,687 | 9,384 | |
| Forest Products | 30,991 | 28,608 | 24,386 | |
| Ore | 10,465 | 5,380 | 3,449 | |
| Merchandise L. C. L. | 153,241 | 148,687 | 153,799 | |
| Miscellaneous | 267,937 | 210,722 | 210,505 | |
| January 30 | 659,790 | 621,890 | 596,961 | |
| January 23 | 670,376 | 584,637 | 555,528 | |
| January 16 | 700,238 | 611,347 | 562,826 | |
| January 9 | 698,529 | 614,853 | 553,518 | |
| January 2 | 587,953 | 541,826 | 497,274 | |
| Cumulative Total, 5 Weeks.... | 3,316,886 | 2,974,553 | 2,766,107 | |

Car Loading in Canada

Car loadings in Canada for the week ended January 30 totaled 47,100, as against 45,612 for the previous week, (Continued on page 298)



The C.T.C. Machine Is Located in the Office at Marshall

Centralized Traffic Control on Texas & Pacific

Project includes three passing sidings on busy 15-mile section of single-track handling 28 scheduled trains daily

THE Texas & Pacific has installed centralized traffic control on 15 miles of single-track line between Texarkana, Ark., and Springdale, Tex., including three passing sidings with operative switches and controlled signals for directing train movements by signal indication without written train orders. This section is a portion of the 67-mile subdivision between Texarkana and Marshall which is one of the heavy traffic territories of the Texas & Pacific.

Routing of Trains

The Texas & Pacific and the Missouri Pacific operate a direct connection at Texarkana, practically all of the passenger trains between St. Louis, Mo., and principal cities in Texas being handled with through equipment. The Missouri Pacific uses the Texas & Pacific engine-house at Texarkana and the freight yards are operated jointly. At Marshall, connection is made with the main line from Shreveport, La., and New Orleans on the east to Dallas, Ft. Worth, and El Paso on the west, where connections are made for Pacific Coast points. At Longview, 23 miles west of Marshall, connection is made with the International-Great Northern line of the Mis-

souri Pacific System, extending through Palestine, Tex., to Houston and Brownsville, and to Austin, San Antonio, and Laredo.

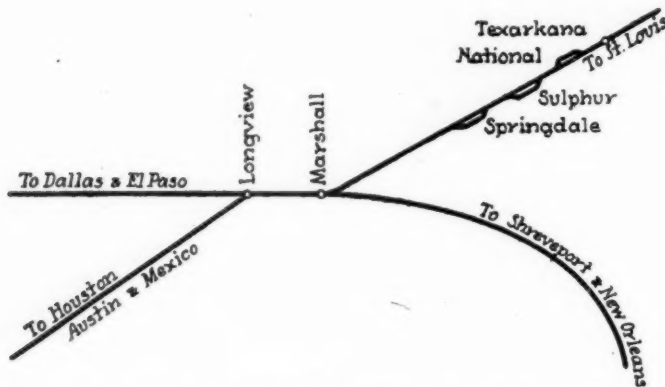
The traffic between Texarkana and Marshall includes 14 scheduled passenger trains and 14 to 16 freight trains daily; during the 31 days of December, 454 passenger trains and 445 freight trains were handled. The line traverses a rolling country, with several short grades, none of which is long enough to affect tonnage ratings. Passenger train speeds are limited to 70 m.p.h. and the Sunshine Special is scheduled to run the 67 miles in 1 hr. 20 min. Freight trains are limited to 55 m.p.h. and some of these trains are scheduled to run between Texarkana and Marshall in 2 hr. 21 min. The Class 9-1 locomotives used regularly in fast freight service have a rating of 3,400 tons and usually handle approximately 100 cars.

The most serious difficulties in handling an average of 29 trains daily over this 67-mile section occur during those periods of the day when several important trains are bunched. Thus, two sections of the Sunshine Special westbound, one passenger train and a scheduled meat train eastbound, as well as other trains, are handled between 4 a.m. and 7:30 a.m., while three eastbound pas-

senger trains and three westbound scheduled freight trains are handled between 2 p.m. and 4:30 p.m.

C.T.C. Added to Automatic Block

Automatic block signaling of the color-light type, controlled by the absolute permissive block system, had been in service on this territory since 1926. This signaling had, of course, been of great advantage in im-



Traffic for Several Routes Is Handled Over the Texarkana-Marshall Section

proving safety, increasing track capacity by reducing spacing between following trains, etc. However, freight trains lost too much time when unanticipated delays were encountered in getting passenger or scheduled freight trains out from Texarkana or Longview, the worst difficulty of this nature being recorded at Texarkana.

A study showed that decided improvement could be effected in train operation by installing centralized traffic control to permit making meets at the time and place most nearly conforming with the movement of the trains. This system includes power switch machines for operation of the passing track switches, so that trains may enter or leave sidings without stopping to enable trainmen to handle the switches; and, at each end of every siding, signals are provided to direct trains to proceed on the main line, to enter the siding, or to leave the siding; the operation of these signals as well as the switch machines being controlled from a central point.

At Marshall. To provide flexibility in train operation where most needed at this time, the centralized control equipment was installed first between Texarkana and Springdale, being placed in service on December 20.

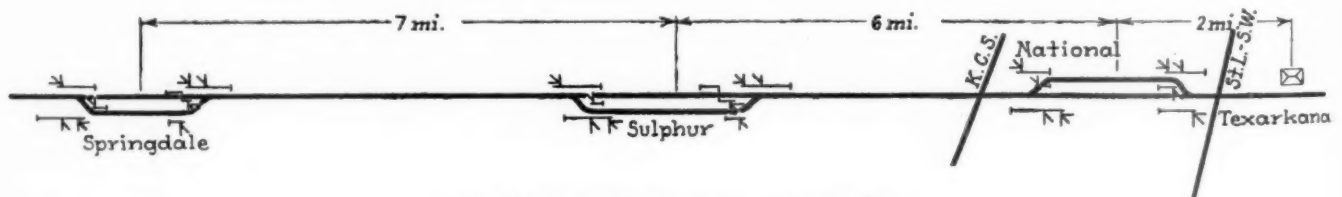
Three passing track layouts are included in this territory, Springdale, Sulphur, and National, 15, 8, and 2 miles, respectively, from Texarkana. The passing tracks at Springdale and National will each hold a train of 113 cars and that at Sulphur a train of 134 cars. A new arrangement of signals by means of which train movements are directed without written orders was installed at each end of these three sidings, these signals being semi-automatic and under the control of the C.T.C. operator at Marshall.

All signals are of the color-light type. A two-arm signal, located 30 ft. in the approach to the facing point of a switch, has a three-indication top "arm" for directing through train movements on the main route; a lower "arm," which has two indications, directs train movements into the siding. A feature of these two-arm signals is that neither lamp is lighted in the lower "arm" when the green aspect is displayed in the upper "arm." This practice was adopted to eliminate any red light in an "all-clear" proceed aspect.

In the approach to the trailing side of the switch, and located at the right of the main line opposite the fouling of the passing track, is a single "arm" three-indication signal for directing trains for movements on the main line. Where this signal is located on the same side of the main line as the siding, a cantilever mast is used to bring the signal above the right-hand rail of the track governed. A two-indication searchlight type dwarf signal for directing the movement of trains in leaving the siding is located at the right of the siding opposite the fouling point.

The turnouts at all of these passing sidings are No. 16, thus permitting train movements over the turnout at 30 m.p.h. Electric switch machines, under the control of the C.T.C. operator, were installed at the passing track switches at Springdale and Sulphur. The switch machines are the G.R.S. Model 5-D with dual-control and are equipped with point detectors.

The switches for the passing siding at National are operated as spring switches, the Mechanical Switchman type being used with the east switch set normally to divert trains to the siding and the west switch for through movements on the main line, thereby, in effect,



Track and Signal Plan of the C.T.C. Territory

By means of indicator lamps on a track diagram on the control panel, the C.T.C. operator is informed of the position of each train so that he can arrange the meets currently as the trains progress, thereby reducing the delays for all trains to a minimum.

Layout of C.T.C. Project

The ultimate plan is to provide centralized traffic control continuously from Texarkana to Marshall, 67 miles, and on to Longview, 23 miles further. For this reason, the new C.T.C. control machine was located in the of-

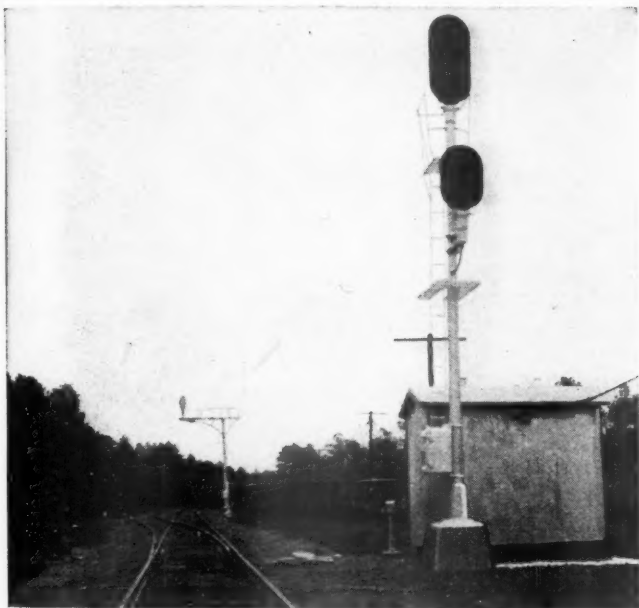
providing two main running tracks for the length of this siding, since train speeds in both directions are limited to 30 m.p.h. in this area. The east switch is located just west of an interlocking at the crossing with the St. Louis Southwestern a short distance west of the terminal at Texarkana, so that westbound trains have not attained speed when passing the switch. Furthermore, a crossing with the Kansas City Southern is located about 1/4 mile west of the west passing track switch, over which a speed limit of 30 m.p.h. is in effect. The location of this section of double track just outside the Texarkana terminal permits a westbound train to be

started out of Texarkana onto the C.T.C. ready to depart as soon as an inbound eastward train arrives.

The operation of trains in either direction over the switch at the east end of this siding must be co-ordinated with the operation of the interlocking signals protecting the crossing with the St. Louis Southwestern, and for this reason, the signals at this east switch are under the joint control of the leverman at the crossing and the C.T.C. operator at Marshall.

The General Railway Signal Company's centralized traffic control system is used on this installation, the control of the switches and signals, as well as the return of indications to the control machine, being effected by code handled over three wires extending between Marshall and Texarkana. The control machine is of a new type, being constructed of units which are assembled as a complete machine, permitting additional units of similar construction to be added as the control system is extended from Springdale to Marshall and to Longview.

The levers are located in two rows at the lower section



Signals at the Ends of the Passing Tracks Direct Train Movements

of the panels, the signal levers being the top row and the switch levers below. The normal position of each lever handle is up. A signal lever is turned 90 deg. to the left to clear a signal for an eastward train movement, and 90 deg. to the right for a westward movement. A switch lever is turned 90 deg. to the right to reverse the switch. Having set the levers for the control of the switch and signals at a certain switch layout, the small button below these levers is pushed to cause the code control to be sent out on the line. The small lamps in the face of the levers are indication lamps, the lamp in a switch lever being lighted from the time the lever is moved until the switch machine has operated the switch to the position corresponding to that of the lever and is again locked. In other words, this lamp is lighted whenever the position of the switch is out of correspondence with that of the lever. The indication lamp in the face of each signal lever is lighted to repeat a proceed aspect of a signal which is controlled by that lever.

This centralized traffic control installation was planned and constructed by signal department forces of the Texas & Pacific, the engineering and the principal items of equipment being furnished by the General Railway Signal Company.

Average Freight Transportation Cost

WASHINGTON, D. C.

A STUDY of average railroad freight transportation costs, based on statistics of Class I railroads for 1935, has been prepared by B. T. Elmore, senior statistical analyst in the Bureau of Statistics of the Interstate Commerce Commission, and made public by the commission with a note saying that it was issued to promote the study and criticism of cost-finding methods and not as a public document admissible as evidence in rate proceedings. The study consists largely of tables with an appendix outlining the methods used but the purpose and some of the methods are explained in a statement of introductory comment by M. O. Lorenz, director of the Bureau, as follows:

Pending the further detailed development of railway cost finding along the lines indicated in a report by the Federal Coordinator of Transportation in June, 1936, it has seemed advisable for present use to compute the average cost of performing railroad freight transportation for various distances, types of cars, and sizes of loads so far as practical from currently available statistics. Similar tables have been experimentally prepared in this Bureau in the past but not published. The edition of 1930 was given limited circulation among experts for criticism.

Based on 1935 Figures

The present costs are based on the accounts and statistics of 1935, adjusted to allow for the fact that the present level of wage rates was in effect for only a part of 1935. It may be thought that with the subnormal traffic of that year, the average unit costs would be abnormally high, but actually they approximate those previously computed on the basis of the statistics of 1928. This result is explained by the drastic curtailment of expenditures by the railways as their revenues fell off. Thus, the total operating revenues of Class I railways fell from \$6,112 millions in 1928 to \$3,452 millions in 1935, or 43.5 percent; the expenses were cut from \$4,428 millions to \$2,593 millions, or 41.5 percent.

The purpose of these tables is to enable one to ascertain readily what is the total cost of transporting freight by railroad a given distance, with a stated load per car, and in a specified type of equipment under the average conditions in the United States. The expense from loss and damage is allowed for as a separate item according to the kind of commodity for which a cost rate is sought. Cost is used in the sense of a complete cost, including operating expenses, taxes, and return on investment.

The use of the tables may be illustrated as follows: Required to find the cost of transporting newsprint paper in carload quantities a distance of 300 miles. From Table A it appears that the average load per car is about 26 tons; from Table B, one concludes that this traffic is carried in box cars; in Table C-1 the column headed 26 (net load per car) is selected, and opposite 300 in the stub the cost rate of 14.92 cents per 100 pounds is found. From Table D it appears that 1.02 cents should be added to cover loss and damage, giving a total of 15.94 cents.

In the case of l. c. l. freight a cost is not ascertainable by commodities. It is regarded as a mixture. The cost per 100 pounds varies greatly according to the load which the carrier puts into a car. In Table E the cost of carrying l. c. l. freight is shown for loads varying from 3 to 10 tons. The load is known to vary among carriers al-

though it is not regularly reported in current statistics. The average l. c. l. load in 1935 has in this study been taken at 3.83 tons.

The usefulness and limitations of such cost tables may be briefly stated. They afford a ready answer to what are approximate costs of performing freight service under average conditions and thus may make unnecessary elaborate special computations in many rate cases or serve as a check on such special computations. They do not, however, show the cost of carrying traffic by a particular route or in a particular region, or for a type of traffic which involves an unusual amount of interchange or other extra service.

Again, these costs as rate guides take no account of the fact that it is customary to classify freight to some extent as to its value and in other ways vary rates according to what the traffic will bear. Nor do they take account of the fact that it may be justifiable to add an extra profit to freight charges to cover the deficit which may be incurred in the passenger service. In other words, these costs treat the freight service as a separate business which is made to bear only a part of the return on roadway investment and a part of the cost of maintaining the roadway according to the use made of it by the various services.*

In constructing rate scales the amount of progression for successive distances is an important consideration. In previous editions of these tables and in many cost exhibits in rate cases, the scales have been constructed by adding to the terminal charge the products of the varying number of miles by a constant line-haul charge per mile. This produced a straight line progression. In the present rate tables, the line-haul charge for the first 50 miles has been increased above the average cost to allow for the higher unit cost of local train service and for the remainder of the distance the line-haul has been adjusted to allow for the lower cost in through train service. The details of this adjustment are given in the Appendix. The amount of tapering of the rate per ton-mile which results from these approximations of cost does not conform to common rate-making practice, which makes a wider difference between the rate per ton-mile for medium and long distance than can be justified from the standpoint of cost. In other words, the principle of what the traffic will bear has influenced the progression for distance as well as the general level of the scales in actual use.

Such average costs as are here presented can rarely alone be determinative of what a rate decision should be in a particular case, because it is necessary in rate cases to consider the place of a particular rate in the general rate structure, the regional differences in cost of operation, commercial conditions, and many other factors.

As above stated the costs given are intended to be complete costs, including a return on the investment. If it is desired to know what is the "out-of-pocket" cost, it may be found by applying a suitable percentage to the rates found from these tables. By out-of-pocket cost is meant the expenses which may be considered as definitely connected with the rendering of a particular service.

The methods used in computing the costs are explained in detail in the Appendix. It will be noted that use has been made to a large extent of methods and information developed by the Section of Transportation Service of the Federal Coordinator of Transportation. The preparation of the tables and the Appendix was under the direction of B. T. Elmore, a Senior Statistical Analyst in this Bureau.

* These cost rate tables make no allowance for the fact that rate scales are commonly based on the short line distance although much traffic moves via circuitous routes.

Communications . . .

The Railway Age cannot publish letters from readers who do not supply their names and addresses. Names of correspondents are not published, or disclosed even upon inquiry, unless the correspondent consents. But they must be given us as an evidence of good faith.

Takes Issue With Richards

17 LONG MEADOW ROAD,
YONKERS, N. Y.

TO THE EDITOR:

After reading the article in the January 30 *Railway Age* by Clarke A. Richards entitled "See Yourself as Your Passenger Sees You," I am prompted to offer a line or two from a passenger of different opinion.

Certainly, the older types of passenger rolling stock can not be compared with the new for comfort and convenience, yet anyone with common sense should realize that if all the older cars were to be immediately modernized or completely replaced by the newer types, the expense would necessarily be reflected in higher fares. I dare say that if both types of cars were operated in the same train, with low fares charged in the older style cars and higher fares charged in the new cars, there would be a greater patronage of the older cars than the newer design. And our friend Richards would more than likely ride the older cars for the sake of economy, if nobody he knew were looking.

And I would like to offer my own opinion, resulting from actual travel experience, that the worst of the older railroad cars can not compare with the best of the highway buses for all around discomfort. I have never yet ridden any bus in which the insidious odor of carbon-monoxide exhaust gas did not give me a headache at first and later make me dozy, but not to the point where I could forget that the driver himself must necessarily be struggling to keep awake for the same reason. Did Mr. Clarke ever try to ride in a bus? With your newspaper dancing about to the vertical vibrations caused by uneven pavement and the throbbing of the gasoline motor, it just can't be done, unless you want to ruin your eyes. At night, poor illumination adds to the difficulty.

Courtesy in a bus? Not in the buses I've traveled. For instance, I called to the operator's attention the fact that his bus was a particularly bad offender from the standpoint of exhaust gas within the vehicle, and I asked him to kindly report it before serious results occurred. He declined to agree with me, and gruffly suggested that I open my window. I had already tried to open not only my own window but several others, but they could not be budged. This information I conveyed to him, with the result that he advised me to mind my own business and announced that he could run the bus very nicely without any of my assistance. And when we approached the crossing where I wanted to get off, he deliberately stopped, not at the curb, but out where I was forced to alight in melting slush nearly knee deep.

Courtesy of the bus line officials? I reported this incident by letter, omitting the bus driver's identification because, as

Freight Car Loading

(Continued from page 294)

and an increase of 8,094 or 21 per cent over last year—according to the summary of the Dominion Bureau of Statistics.

| | Total Cars Loaded | Total Cars Rec'd from Connections |
|-------------------------------|-------------------------|---|
| Total for Canada: | | |
| January 30, 1937..... | 47,100 | 27,158 |
| January 23, 1937..... | 45,612 | 25,971 |
| January 16, 1937..... | 47,289 | 27,259 |
| January 25, 1936..... | 39,006 | 21,036 |
| Cumulative Totals for Canada: | | |
| January 30, 1937..... | 185,006 | 106,704 |
| January 25, 1936..... | 153,767 | 85,370 |
| January 26, 1935..... | 157,903 | 81,847 |

I stated, I had no desire to cost the man his job; but I did suggest that there might be something wrong with their policy of public relations and with their training of personnel. That was over a year ago, and my letter has not yet even been acknowledged.

Comfort in a bus? It is my misfortune to be six feet tall. If I get a seat, which is not often, I never have room to get all of me out of the aisle. My knees and feet must necessarily protrude, to be bumped and stepped on by all those who struggle through the narrow passage. And are those passages narrow! It is all I can do to get through sideways, and if I have a bag with me, it must needs be hoisted up above the seat-backs in passing; and in a swaying, jerking vehicle such as that, is it any wonder if by accident the bag collides with some seated passenger's head or shoulder? Then, of course, I must apologize for my clumsiness.

And having arrived in that portion of the bus where I am to sit—or stand—where am I to put the bag? Friend Richards praises the baggage accommodations aboard the bus. He must confine his bus riding to the bigger trans-continental variety. Let him try some of the more numerous short haul buses. They just simply haven't any baggage racks, and if you are a standee in a crowded bus, (it seems they are *always* crowded to capacity) you just have to hold your baggage in your hands for the duration of the trip. Certainly the man next to you will object if you set it down on his toes.

And that is not the worst of standing up. Being six feet tall carries its own penalty aboard a bus. . . . in the form of a pain in the neck, and frequent bumps on the skull. You keep your head bent down till you can't stand it any longer, then you straighten up and get your head bumped on the roof. You pay your money and take your choice.

Brother Richards complains of dirt and soot aboard the trains. He should see my light colored felt hat after a bus ride. Just as I alight, we roll over one last bump, and this parting shot bounces me up to wipe my hat on the generously greased door track above the exit. And a whisk broom won't remove that filth; not even a fifty-cent hat cleaning job gets it all off.

For me, it is much more pleasant to have a conductor pronounce the word "tickets" in my ear, even if I am sound asleep up to that moment. On a train I *can* sleep, confident that an experienced engineer with his attention concentrated on running the train is piloting me safely on my journey. It always makes me apprehensive to see a bus driver try to steer through random traffic, sell tickets, make change, call out stops, open and shut doors, answer questions, watch the rear vision mirror for traffic cops, and try to pick out the passengers that are attempting to over-ride their fare zones. When the conductor comes to my seat and requests my ticket, (even if he doesn't say please) I am reminded that aboard the train I don't have to perform the almost impossible feat of desperately hanging on to a stanchion with one hand at the entrance, while I balance my luggage somehow with the other and at the same time unbutton my overcoat and produce my ticket. If I let go of that stanchion for one fleeting second, I am sure to be capsized by the incessant lurching and bouncing of the bus.

Lavatories? Not on the bus. Not even untidy lavatories. One just has to wait until such time as the driver pulls up to a certain wayside point and announces "Now All together," or words to that effect, whereupon one stands in line to await his turn at the much too inadequate accommodations. And *are they filthy!* There one will find paper towels, plenty of them, but they are all on the floor and soaking wet. But one doesn't tarry to contemplate this fragrant scene for long, as the bus driver is voicing his impatience to be off.

Back aboard the bus again, I've lost my seat. Somebody else feels that it's his turn to sit down. Maybe so. Who cares? Certainly not the driver. So now I stand. The tops of the windows are just level with my belt, so from here on I might as well be blind. It is impossible to read, and no scenery is visible from the standee's level.

Water aboard the bus? Not at any price, . . . not even for a penny. Soda pop at the next stop, but it isn't advisable to ask for a glass of water unless you are prepared to purchase something from a nickel up.

No, Mr. Richards, I definitely can not agree with you when you say that competing buses are preferable to the railroad

conveyances. To me, the oldest of the obsolete railroad coaches is far superior to the best of the buses, especially on long trips. The longer the trip, the more decided the preference. And in addition to comfort, I value safety. Aside from the newspapers, authentic statistics should impress any traveler (who is interested in arriving at his destination rather than at the hospital) with the superiority of the railroad over the bus line.

Sure, the railroads should improve their equipment. They *are* improving their equipment to the extent of providing the safest, most comfortable mode of travel in existence. And they are doing it on a 2-cent per mile rate. I'm for all the improvement possible and as quickly as possible, without increasing that rate. I believe that retention of that rate will win them sufficient traffic to insure their survival in the face of cut-throat, unsafe competition. Too many miles of railroad have already been forced into abandonment, and we ought to make it possible to the best of our ability to avoid further abandonment. We, the public!

E. JAY QUINBY.

Business Research Bureau for the Traffic Department

EL PASO, TEXAS

TO THE EDITOR:

A prolific, and, to a large extent, untapped, source of detailed information valuable to railroad freight traffic executives and representatives relative to traffic volume, trend of commodity movements and other business-building information is available through the media of regularly issued business surveys by various governmental and private agencies.

The federal departments of commerce and agriculture, as well as various state governmental bureaus and agencies, release reports at different intervals giving a wealth of detailed information, which, for the most part is free of charge, and which could be made a valuable part of a freight traffic manager's files for use in the consideration of traffic problems arising from time to time.

As an illustration, traffic officials may keep pretty well abreast of the movement of fruits and vegetables by securing a survey released by the U. S. department of agriculture showing the "unloads" at 37 of the principal cities of the country, each city being shown separately with origin of the commodity by states, one statement showing the information by months of the current year and another statement showing the same information compared with previous years. These figures are compiled by the government from figures furnished by common carriers. The same information with respect to movement of other commodities is also available from the government.

Agricultural colleges of the various states usually make annual reports showing in detail the movement of certain commodities from individual stations or sections, and, in some instances, particularly as far as live stock is concerned, their reports are a virtual census of the various classes of animals in the state. Also in some Western states, where mining colleges are located, a close check is kept of production of the various classes of metals, together with reports of their movements to the various markets. Reference to these reports, generally considered as being very accurate, would perhaps save considerable labor by traffic departmental employees in assembling information for reports they are called upon to furnish.

The freight traffic department of at least one major line has recognized the value of assembling this sort of information in a compact, systematic manner and for that purpose has organized a bureau of business research as an adjunct to the freight traffic department. The various reports, surveys, annual statements, etc., are cataloged and thus are instantly available as a source of practical information for executives in the consideration of applications for rate adjustments or to ascertain if their properties are getting their share of business, and for other purposes.

The passing of the days of freight haul monopoly by steam carriers has caused many lines to give consideration to effecting possible improvements in their routine, and the adoption of business research bureaus will probably grow in favor.

J. M. PURCELL,
Atchison, Topeka & Santa Fe.

NEWS

Rate Case Hearing in Several Cities

Commission will arrange for sessions outside of Washington after April 15

Testimony on behalf of the railroads, in the hearing before Commissioner Aitchison of the Interstate Commerce Commission in Ex Parte No. 115, on their application for increased rates on a large number of commodities to take the place of the emergency charges which expired on December 31, was concluded on February 2 at Washington with the exception of certain information to be supplied upon (1) the general aspects of the reopened proceeding (2) the lawfulness and propriety of the proposed increased rates upon the so-called heavy basic commodity list, and (3) the percentage relation to first-class rates of fifth and sixth classes when governed by the official classification. The hearing will be resumed at Washington Tuesday, March 23.

Upon resumption of the hearing, according to a notice issued by the commission, protestants may present testimony as to the foregoing matters. Testimony as to other commodities should be reserved. It is desired to conclude the record upon the subjects mentioned before taking up the other commodities included in the petitions of the carriers. However, testimony will be received separately as to the transcontinental—Mountain-Pacific rates. At the resumed hearing in Washington the same general order will be followed as in the presentation of testimony on behalf of the carriers, i.e., general testimony first, then testimony as to coal, coke, iron ore, etc., and finally, as to fifth and sixth class relations.

While it is considered desirable that as much of the testimony as is possible be produced at Washington, especially that of a general character, the commission will arrange for further hearings as to the general aspects of the case, the heavy basic commodities, and as to official classification fifth and sixth class relations, at Boston, Mass., Atlanta, Ga., Chicago, Ill., St. Paul, Minn., and Kansas City, Mo., after the Washington hearing. The dates will be announced later but the outside hearings will commence not earlier than April 15.

The far western and transcontinental rates will be heard independently. It has been arranged to commence the hearing upon these rates at San Francisco, Calif., on April 12. Protestants who desire to

produce testimony at San Francisco will be given an opportunity to do so immediately following the close of testimony for the western carriers and their connections. Subsequently, at dates hereafter to be announced, but not earlier than May 15, further hearings will be resumed at Salt Lake City, Utah, Los Angeles, Calif., and Portland, Ore., for reception of testimony on behalf of protestants.

Streamliner Derailed

Two cars of the streamliner "City of Denver" of the Union Pacific-Chicago & North Western were derailed on February 8, when an axle broke near Orchard, Colo. After the accident the train continued to Denver, and, on the following day, made its trip to Chicago without the derailed cars, an observation car and a sleeping car. At Chicago the newly constructed cars of the Pullman Company, the "Advance" and the "Forward," were added to the consist of the "City of Denver" and were used until a new axle had been placed in the truck of the derailed cars on February 10.

Railroads Buying New York World's Fair Bonds

Commitments and subscriptions totaling \$1,990,000 have thus far been received for New York World's Fair debenture bonds from transportation companies. Among the subscriptions received up to February 10 from railroads were: Pennsylvania, \$500,000; New York Central, \$400,000; Delaware, Lackawanna & Western, \$50,000; Erie, \$40,000; Lehigh Valley, \$30,000; Chesapeake & Ohio-Nickel Plate-Pere Marquette, \$25,000; Norfolk & Western, \$25,000; Delaware & Hudson, \$20,000; Lehigh & New England, \$5,000; Lehigh & Hudson River, \$3,000; Rutland, \$2,000.

Excessive Property Tax Remedy

In a tax injunction suit by the Baltimore & Ohio against the West Virginia Board of Public Works, the Federal District Court for northern West Virginia, in a three-judge decision (17 F. Supp. 170), held that the railroad had an adequate remedy by appeal from the board's decision to state courts with respect to the valuation and assessment of its property for taxation, so that it could not invoke the aid of a federal court of equity to enjoin its property tax as being excessive and discriminatory, and that it had an adequate remedy against collection of the privilege tax in the right to defend the suit provided by the state statute for its collection, viz., an equity suit in the state's name, by the Attorney General.

Strike on C. G. W. Is Again Averted

Emergency board appointed by President Roosevelt to investigate dispute

For the second time a strike of members of the Big Five Brotherhoods on the Chicago Great Western was averted on February 8 when President Roosevelt intervened and by special proclamation appointed an emergency board to investigate the dispute and directed the filing of a report within 30 days. The mediators appointed are: John P. Davaney, chief justice of the Minnesota supreme court; Harry A. Millis, professor of economics of the University of Chicago; and Walter C. Clephane, attorney at Washington, D. C.

The action of the President was based on a recommendation of a national mediation board stating that "the dispute between the railroad and the employee organizations now threatens substantially to interrupt interstate commerce within the states of Illinois, Iowa, Minnesota, Missouri and Kansas."

The controversy dates back to the early part of last year when the railroad changed the timing of shifts and the brotherhoods demanded overtime compensation. In July a ten-man board, established by the national railway adjustment board, awarded \$60,000 overtime compensation to certain workers. On October 3 a strike ballot among employees in engine and yard service to force the payment of these awards was begun, and on the same day trustees of the railroad filed a petition in the federal district court at Chicago assailing the mediation board's ruling and asking the court to disapprove or approve the payment. On January 20, 1937, trustees of the railroad were instructed by the federal district court not to pay the \$60,000. Following this action a strike was called for February 9, whereupon the district court, upon petition of the trustees, ordered officers of the brotherhoods to appear and show cause why they should not be held in contempt of court for attempting to interfere with the operations of the Great Western, which is under the court's jurisdiction. This plea of the trustees was dismissed on February 8 on technical grounds.

Texas Exposition to Open June 12

The Greater Texas and Pan-American Exposition, Dallas, Tex., will be re-opened to the public from June 12 to October 31.

I.C.C. Is Opposed to Pettengill Bill

Eastman, voicing opinion of commission, is heard by House committee

Stating that he voiced the opinion of the entire commission, Joseph B. Eastman of the Interstate Commerce Commission testified on February 9 before the House committee holding hearings on the Pettengill long-and-short-haul bill in opposition to the bill. Mr. Eastman prefaced his remarks by saying that nine members of the commission were opposed to the present bill and that two were definitely opposed to any change in the fourth section.

Mr. Eastman began by sketching the history of the long-and-short-haul clause and said that the law was first enacted to satisfy widespread public demand. He said that he felt that the real complaint in the case of the fourth section was against the administration of it by the commission. Critics of the law feel that the commission takes too long a time to decide the fourth section applications presented by the railroads. He felt that under the proposed law the commission could administer it exactly as it is now being administered, but that the commission would probably take the bill as a mandate of the Congress to interpret the law more favorably to the railroads. Mr. Eastman remarked that J. G. Kerr, representing the railroads, had stated that the commission was bending over backwards to protect the water lines. This, he said, was the first time that he had been criticized for being too friendly to the water lines, for the water lines had always contended that the commission was railroad-minded.

Mr. Eastman admitted that "there has been considerable delay in passing upon important decisions in the past." He said that he thought the commission had been justly criticized on that score, but that at present the record of the commission in passing upon fourth section applications is a good one. He would not object to the Congress putting a time limit upon the action upon fourth section applications. In criticizing the argument of the railroads, Mr. Eastman pointed out that the contention that the passage of the bill will increase traffic has no application to trucks, or pipe line, air, or rail competition, with the obvious result that the only increase in traffic would come from the water lines. From 1930 to 1936, according to Mr. Eastman, the commission granted 194 out of 235 applications for fourth section relief on account of water competition.

Mr. Eastman continued his discussion on February 10 saying he felt that the contention of the railroads and labor interests that the bill would increase employment was unsound in that any business which the railroads would get by a reduction of rates would have to be taken from the water carriers so that if men were taken on in one industry, they would have to be let off in the other. He also felt that, if the railroads reduced rates low enough to get traffic from the water lines, a few of

the more efficient water carriers would reduce rates still further with the result that the railroad rates would not meet out-of-pocket costs. If this happened, the commission would have to step in and suspend the rail rates as non-compensatory.

Other witnesses opposing the Pettengill bill included H. C. Cantelow, secretary-manager of the Pacific Coastwise Lumber Conference and the Pacific Coastwise Conference; Charles W. Cook, vice-president of Swayne & Hoyt, Ltd., appearing for members of the Gulf Intercoastal Conference; Paul Scharrenberg, legislative representative of the International Seamen's Union of America; Walter J. Petersen, appearing for the Pacific American Steamship Association, the Shipowners' Association of the Pacific Coast, and the Waterfront Employers' Association of San Francisco; George J. Miller, executive secretary of the Missouri River Navigation Association; August G. Gutheim, appearing for operators of nine fleets of vessels on the Great Lakes; Harry C. Ames, appearing for the Mississippi Valley Barge Line; L. W. Childress, of the Mississippi Valley Barge Line; Major General Ashburn, of the government barge line; and Edward S. Brashears, general counsel of American Trucking Associations, Inc.

Union Pacific on Air

The Union Pacific will sponsor an electrical transcription radio program one Sunday each month, starting February 14, over station WGN, Chicago. The program is titled, "Romance of Transportation."

Claim Prevention Month Postponed

Because of flood conditions, Claim Prevention Month, scheduled for March, has been postponed to April. Plans for activities during April will be discussed at a meeting in Chicago on February 16.

Wheeler Hearing Again Postponed

The hearing before the Senate committee on interstate commerce set for February 8 in connection with its investigation of railroad financing was again postponed without definite announcement as to when hearings would be resumed. On the same day the question of limiting the extent to which Congressional investigating committees may use the services of employees of various government agencies such as the Interstate Commerce Commission, on which the Senate and the House have taken opposite positions, came up on the conference report on the deficiency bill and a compromise was reached by the adoption of an amendment merely providing that for thirty days after passage of the act funds appropriated in the bill shall not be used for the compensation of any person not taken from relief rolls detailed or loaned for service in connection with Congressional committee investigations under special resolution. To avoid delay of the deficiency bill it was decided to postpone the controversy until consideration of the independent offices bill, carrying the appropriation for the Interstate Commerce Commission, which was passed by the House would prohibit use of the funds in connection with an investigation under a resolution of either House of Congress.

Six-Hour Day Bill Offered in House

Labor proposal presented on February 5 by Representative Crosser of Ohio

The six-hour day bill proposed by the Railway Labor Executives' Association, on which hearings were held before the Senate committee at the last session of Congress, was introduced in the House on February 5 by Representative Crosser, of Ohio, as H.R. 4406. It is in the same form as previous bills on this subject but omits train dispatchers, for whom a separate bill is proposed. It is proposed to amend the Adamson eight-hour law passed in 1916 by providing "that beginning July 1, 1937, six hours shall, in contracts for labor and service (except where a lesser number of hours constitute a day under existing agreements), be deemed a day's work and the measure or standard of a day's work for the purpose of reckoning the compensation for service of all employees, except train dispatchers, who are now or may hereafter be employed by agencies and/or operators of facilities of interstate transportation, including any common carrier by railroad (its floating equipment, such as barges, tugs, ferries, and bridges), express company, freight-forwarding company, and sleeping-car company (hereinafter called carriers), which is subject to regulations under the interstate commerce clause of the Constitution of the United States, except electric street railroads and electric interurban railroads not operating as a part of the general transportation system."

Provision is also made for the appointment of a commission of three to observe the effect of the institution of the six-hour workday for a period of nine to twelve months and meanwhile that compensation of employees for a six-hour day shall not be reduced below the present standard day's wage.

Senator Lonergan, of Connecticut, has introduced as S. 1356 the bill to repeal the long-and-short-haul clause and Senator Wheeler, of Montana, has reintroduced as S. 1400 the bill for the regulation of water carriers. Representative Lea, of California, has introduced as H. R. 4341 the bill to declare prima facie unreasonable the elimination of any existing through route or joint rate without the consent of all parties thereto or authorization by the Interstate Commerce Commission.

Rail and Labor Committees Discuss Possible Pension Agreement

Committees representing the railroad managements and the Railway Labor Executives' Association appointed at the request of President Roosevelt to endeavor to reach some agreement on a plan of retirement annuities, after several previous meetings of the main committees and subcommittees held a joint meeting at Washington on February 9 and were reported making progress. On February 10 the railroad and labor committees met separately.

Condemns N. Y. Storage Practices

I.C.C. affirms previous findings on warehousing by carriers at that point

As briefly reported in last week's issue the Interstate Commerce Commission, after argument and reconsideration asked by the railroads, has issued a further report affirming the findings of its previous report regarding the warehousing practices of the railroads at the port of New York and has issued an order effective on April 15 requiring them to desist from the practices criticized in the report which have the effect of charging less for warehousing and storage than the cost to the railroad owning the facilities. The commission has altered its decision in one respect. The carriers had contended that the commission erred in requiring the cancellation of tariffs filed by the carriers to cover storage-in-transit rates, handling charges, and rates for insurance of goods while in storage, which the commission had found to be commercial services. The commission, in the reaffirmance of its decision, has agreed that they should be allowed to include the charges for these services in their published tariffs.

The commission states that "what is here condemned is the fact that the respondents have voluntarily engaged in storage and warehousing services which are not within their common carrier obligations, and by providing such services to shippers below the cost of such services, reduce the cost to such shippers for the transportation of their goods. The tariffs now on file are instruments which work violations of the act, in that through them respondents hold themselves out to perform commercial services (under the guise of performing transportation services) at rates and charges which fail to compensate respondents for the cost of performing them."

The order of the commission affects all lines entering the port of New York and orders them to desist from allowing shippers and warehouse companies to store goods and rent space owned by the carriers for less than the actual cost to the carriers. They must comply with this order by April 15. The carriers are also ordered to cease charging less for insurance of goods than the actual cost of insurance.

Commissioner Mahaffie dissented.

Reduction in Rates on Grapefruit Asked

The request of Florida grapefruit growers and their representatives in Congress for a 50 per cent reduction in railroad freight rates because of the emergency declared to exist because of an excess supply was the subject of a conference between representatives of the growers and A. F. Cleveland, vice-president in charge of the traffic department of the Association of American Railroads, at Washington on February 9. Mr. Cleveland agreed to take it up with the railroad rate

committees and give a reply as early as possible. The conference was arranged after the request for the rate reduction had been made to the Interstate Commerce Commission and referred by it to J. J. Pelley, president of the railroad association. Mr. Pelley replied to the commission saying the association would be glad to arrange for a conference and listen attentively to any facts presented but he pointed out that the request was "somewhat unique" in that it proposed drastic reductions in rates that are now far below the maximum reasonable basis prescribed by the commission.

He also pointed out that it was asked that "a seasonal variation in prices should be followed by a very material reduction in freight rates" and said that "obviously, if such a theory is to prevail, then under price conditions higher than the general average freight rates ought to exceed the bases set by the commission as reasonable maxima for general application," and that if, because of the unusually large production of grapefruit in Florida, with the resultant decrease in market prices, rates on grapefruit are to be drastically reduced, then, under the same principle, the existing rates on oranges from California ought to be materially advanced above the present basis as a result of the greatly decreased production this year from California."

P.R.R. Program for Eliminating Arch Bar Trucks

The Pennsylvania's program for installing cast steel side frames on its freight cars which are now equipped with arch bar trucks is proceeding at a rate which will assure its completion by the end of this year. Thus, the Pennsylvania will have no freight cars equipped with arch bar trucks on January 1, 1938, the date on which the Association of American Railroads' rule, barring such cars from interchange, becomes effective. The Pennsylvania program involves the replacement of trucks under 185,000 cars, the improved trucks being largely constructed from parts reclaimed from those previously in use.

Illinois Central Offers Two Automobile Services

The Illinois Central has announced that passengers now have a choice between two plans of nation-wide application enabling them to have available at destinations automobiles for their own use. One of these is the already familiar plan of shipping the family automobile ahead by rail. This may now be done at a cost of four cents per mile if the passengers hold two or more tickets good in standard sleeping or parlor cars or three or more tickets good in other cars, the minimum acceptable charge being \$54 for passengers and automobile.

The other plan involves the use of the "drive-yourself" automobile facilities that are available in most cities with a population of 5,000 or more. To popularize this plan, the Illinois Central is circulating among its passengers a list of some 400 "drive-yourself" stations prepared by the western railroads and covering many of the states in which this railroad operates.

Progress on C.N.R. Capitalization Bill

Howe says readjustment will favorably affect credit of Dominion and road

"The clearing up of the duplication in debts between the C. N. R. and the Canadian government will favorably affect both the railway credit and the credit of the Dominion itself," declared Hon. C. D. Howe, Minister of Transport, in moving in the House at Ottawa last week second reading of his bill to revise the accounts of the Canadian National. "It will also have an important effect in making clear to the public just what the railway debt situation is, when it is added to the public debt situation, and so possibly help to bring about a higher regard for the railways in the mind of the public."

While not objecting to removal of duplication as between the accounts of the railway and the public accounts of Canada, the leader of the Opposition, Rt. Hon. R. B. Bennett, reiterated his demand that what the people of Canada put into the Canadian National should be made clear somewhere and continually. "We want to know what it has cost to nationalize our railways," said Mr. Bennett. "We want to test the value of nationalization plans as compared with others. The only way we can do that is to have the information upon the books."

His specific objection was to any proposal to write down two existing items in the C. N. R. balance sheet, namely, "other loans from Dominion of Canada, \$679,873,935," and "interest on above accrued but unpaid, \$495,030,137"—the two items totaling \$1,174,904,072.

"I deny the right of this Parliament in honest dealing with the public," the Conservative leader declared, "to change that amount by a single cent. That represents money paid by the Canadian people into the capital of this enterprise; that represents loans from the Dominion of Canada. The Dominion Government went into the open market and borrowed money and then loaned it to the Canadian National. That money was not given by way of subsidy. Let us not have any misunderstanding about that."

Railroad Labor Case Before Supreme Court

Argument was heard by the Supreme Court of the United States this week in a case in which the Virginian is challenging the validity of provisions of the railway labor act. The case is on an appeal by the railroad from a decision of the fourth circuit court of appeals affirming a decree of the district court directing the railroad to recognize the railroad department of the American Federation of Labor as the representative for purposes of collective bargaining of its shop craft employees.

The National Mediation Board had certified that the A. F. of L. unions were entitled to represent the employees after an election. The railroad company contended in its brief that one-third of the

employees concerned were engaged in "back shops" and were not engaged in interstate commerce and that the sections of the act compelling recognition of the unions are unconstitutional as violating freedom of contract.

Mechanical Division Annual Meeting

Additional information regarding the annual meeting of the Association of American Railroads, Mechanical Division, which will be held in Atlantic City, N. J., June 16 to 23, inclusive, has just been made available by the secretary's office. According to a circular issued under date of January 25, the reports of committees investigating locomotive matters will be received and discussed Wednesday, Thursday and Friday, June 16 to 18, inclusive, and reports of committees investigating car matters will be received and discussed Monday, Tuesday and Wednesday, June 21 to 23, inclusive.

Mercury Averages 290 Persons a Day

A total of 53,377 passengers, an average of 290 persons each day, was carried by the Mercury operated by the New York Central between Cleveland, Ohio, and Detroit, Mich., by way of Toledo during the six months ending January 15, 1937. Westbound 22,086 and eastbound 31,291 passengers were carried. The train's fast schedule (2¾ hr. westbound and 2 hr. 50 min. eastbound) and its unique comfort were the reasons for the popularity of the train, according to a fifteen-day survey made by the railroad. Answers to questionnaires from 2,829 persons out of a total of 4,044 passengers carried during the period showed that 1,546 people had used the railroad either exclusively or occasionally, while 1,283 had used some other means of transportation.

New Set-Up in Germany Makes Drpmueller Transport Minister

With the return of the German railroads to direct government control as a result of Chancellor Hitler's decree of February 2, Dr. Julius Drpmueller, general director of the German Railroad Company since 1926, has been appointed Reich Transport Minister. In this capacity he will continue to function as general director of the railroads under the new set-up, which, an announcement from the German Railroads Information Office, New York, says, removes "the last trace of foreign control of the German railroads which had been established by the now defunct Treaty of Versailles."

The now defunct German Railroad Company operated the railroads there for about 16 years, having been organized as a part of the plan for collecting reparations. However, no reparations have been paid for several years.

Air Express in 1936

Gross revenues of the Air Express division of the Railway Express Agency for 1936 were 66.5 per cent in excess of the 1935 gross reported by the old and new contract air lines, according to a recent

statement. Shipments last year totaled 467,120, the average weight being 8.23 pounds as compared with a 1935 average of 7.67 pounds. The average estimated length of haul (distance flown) for 1936 was 763 miles; for 1935 it was 838 miles.

The Express Agency has recently issued a folder calling attention to the C.O.D. service which it performs in connection with railway express operations. The folder lists a new scale of charges for collecting and returning C.O.D. money and stresses, among the outstanding advantages of the C.O.D. service, the manner in which it enables a merchant to do business immediately with everybody; and its many flexible features which meet the needs of various situations arising between the seller and his customer.

Canadian Wage Dispute

Deciding to accept the recommendations of the MacLean Conciliation Board—already spurned as a basis for settlement by 117,000 railway workers—the managements of the Canadian Pacific and Canadian National have announced in Montreal that they would increase February pay checks of both union and non-union workers by paring the six-year-old wage deduction from 10 per cent to nine per cent.

By accepting the conciliation report the railways agree to restore additional one per cent reductions in August and November, and to make subsequent restorations at the rate of one-half of one per cent for every \$7,500,000 increase in the companies' gross revenues.

Close behind the statement from rail executives came a denial from union leaders that the railways' willingness to abide by the board's report would change their plans for circulating a strike ballot. Howard B. Chase, spokesman for the 17 unions involved in the dispute, said he was confident 98 per cent of the unions' membership would sanction a strike as a last resort. He refused to state whether the ballot had been started.

Joint Freight Rates

The Seaboard Air Line receivers, the Atlantic Coast Line and the Southern sued the Delaware & Hudson, the Boston & Maine and the Florida East Coast for an accounting of their fair share of joint freight rates from points in Florida to northern points for citrus fruit transportation between November 9, 1928, and November 22, 1930.

It was not until the latter date that the plaintiffs filed a complaint with the Interstate Commerce Commission for what they regarded as a more equitable division of the freight rates. The right of the Southern group to a more favorable formula was sustained by the commission and the courts, including the United States Supreme Court (298 U. S. 349). The commission's order was by statute limited to rates since November 22, 1930. The present suits asked accountings for the period from November 9, 1928, to November 22, 1930, during which the commission could not fix a rate on the companies' petition.

The Second Circuit Court of Appeals, 86 F. (2d.) 721, affirming decree for defendants in the Federal District Court for

northern New York, held that the plaintiffs had lost their rights by failing to file a timely complaint with the commission on or before November 9, 1928, covering the disputed period and could not now assert such rights in suits for accountings.

Electrification in Sweden

With the completion of the section from Halmstad to Gothenburg, on Sweden's west coast, the principal lines of the Swedish government railways are now completely electrified, according to a recent statement from the American-Swedish News Exchange, Inc., New York. The bulk of the electrification work, the statement says, has been carried out at lower cost than the original estimates, the saving in this connection being now available for the purchase of 13 electric locomotives and other electric equipment.

The electrification is expected to bring substantial operating savings. It is pointed out that during 1934 the savings on the line from Stockholm to Malmo, in the south of Sweden, amounted to 3,200,000 kronor (\$800,000) as compared to 1931, before electrification had supplanted steam; traffic increased 13 per cent in the meantime. Plans for the immediate future contemplate the strengthening of roadbeds on main lines so as to permit trains to travel at speeds of 60 m.p.h.

Refrigerator Charge Hearing Concluded

A hearing before the Interstate Commerce Commission on charges for protective service to perishable freight was concluded at Chicago on February 9, after two days during which shippers failed to present testimony. The commission reopened the case, which it decided last September, for the purpose of determining whether any line-haul rate in effect at present includes any amount as compensation to railroads for the cost of icing and re-icing services on perishable freight. Conflict in the case arose last September, when 25 dairy firms, the big four packers, four large brewers and other plaintiffs, filed suit in the federal district court at Chicago, attacking the order of the commission under which increased rates were to become effective September 10. The companies charged that they were not given the opportunity to present testimony opposing the increases, and contended that existing rates were adequate to compensate carriers for all refrigeration costs, except ice and salt. It was also alleged that charges for icing and re-icing services were included in line-haul rates.

The federal court allowed the plaintiffs an injunction restraining the commission from placing the new tariffs in effect, on the grounds that they were not given the opportunity to submit their evidence prior to the order. The commission subsequently dissolved its order providing for increased charges.

At the outset of the hearing at Chicago, Examiner Sharp declared it was specifically a shippers' hearing, but upon objection modified his ruling to state that it was a hearing for shippers, railroads, and all interested parties. The shippers then waited for railroad testimony, and, when none

was given, declared that if no testimony were offered they could make no rebuttal. When the hearing was concluded, railroad men held the position that it was up to the shippers to show that icing and re-icing services were included in present line-haul rates, while the shippers contended that the burden of the testimony was on the railroads to show that they were entitled to increased service charges.

Railway Accident Statistics

The Interstate Commerce Commission's completed statistics of steam railway accidents for the month of November, 1936, now in preparation for the printer, will show:

| Item | Month of November 1936 | 11 months ended with November 1936 | 1935 | 1935 |
|---|------------------------------|--|--------|--------|
| Number of train accidents | 686 | 583 | 7,530 | 5,895 |
| Number of casualties in train, train-service, and non-train accidents: | | | | |
| Trespassers: | | | | |
| Killed | 192 | 186 | 2,550 | 2,571 |
| Injured | 164 | 197 | 2,532 | 2,888 |
| Passengers on trains: | | | | |
| (a) In train accidents * | | | | |
| Killed ... | .. | 1 | 7 | 1 |
| Injured .. | 57 | 31 | 664 | 351 |
| (b) In train-service accidents | | | | |
| Killed ... | 2 | 1 | 11 | 17 |
| Injured .. | 117 | 109 | 1,537 | 1,355 |
| Travelers not on trains: | | | | |
| Killed | 2 | 1 | 15 | 8 |
| Injured | 57 | 61 | 706 | 572 |
| Employees on duty: | | | | |
| Killed | 80 | 44 | 601 | 492 |
| Injured | 1,919 | 1,361 | 19,896 | 14,809 |
| All other nontrespassers: † | | | | |
| Killed | 258 | 180 | 1,709 | 1,579 |
| Injured | 773 | 606 | 6,145 | 5,385 |
| Total—All classes of persons: | | | | |
| Killed | 534 | 413 | 4,893 | 4,668 |
| Injured | 3,087 | 2,365 | 31,480 | 25,360 |
| * Train accidents are distinguished from train-service accidents by the fact that the former cause damage of more than \$150 to railway property. | | | | |
| † Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontrespassers, were as follows: | | | | |
| Number of accidents | 496 | 412 | 3,742 | 3,408 |
| Persons: | | | | |
| Killed | 243 | 174 | 1,561 | 1,460 |
| Injured | 586 | 486 | 4,340 | 4,052 |

Activities of Railroad "Fans"

G. T. Wilson, automotive engineer of the New York Central, will discuss "The Development and Performance of the Hudson Type Locomotive" before the New York Chapter of the Railway and Locomotive Historical Society in the Engineering Societies building, 29 West 39th street, New York, on February 19 at 7.30 p.m. W. E. Phelps, special engineer of the land and tax department of the same road, will deliver an illustrated talk on its West Side development in New York City and also relate some early historical incidents of the Hudson River Railroad. The film "All Aboard," which was produced by the Association of American Railroads, and another depicting the "Second Wonder Trip" for railroad fans over the lines of the Delaware & Hudson and New York Central on September 20, 1936, will complete the program.

An inspection trip over the Putnam division of the New York Central, with a visit to the engine-house at Brewster, N. Y., was scheduled by the New York Division of Railroad Enthusiasts, Inc., for Saturday, February 13. The next meeting of this group will be held on Friday evening, February 26, at 7:45 p. m. in Room 2726, Grand Central Terminal, New York. The program will include descriptions and pictures of the Chicago & North Western's freight handling operations at Proviso Yard, the Southern Pacific's passenger services and the Union Pacific's fast freight trains.

The Washington Division of the Railroad Enthusiasts, Inc., has called its next meeting for February 13. R. B. Adams, train dispatcher of the Southern, was to be the speaker.

Club Meetings

J. Steele Gow, Director, the Maurice and Laura Falk Foundation, Pittsburgh, Pa., will discuss "The Recovery Problem in the United States" at the next meeting of the Railway Club of Pittsburgh, to be held at the Fort Pitt Hotel in that city on February 25. The program will also include a showing of the Association of American Railroads vocafilm "All Aboard."

The next meeting of the New England Railroad Club to be held at the Hotel Touraine, Boston, Mass., on March 9 will be the annual meeting at which officers for the coming year will be elected. Following the election there will be a showing, under the auspices of the American Steel & Wire Company, of motion pictures of the construction of the San Francisco-Oakland Bay bridge.

The Southern and Southwestern Railway Club will hold its next meeting on March 18 at 10 a.m. in the Ansley Hotel, Atlanta, Ga. John M. Hall, chief inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission, will present a paper on "Reminiscences of Twenty-five Years of Federal Inspection of Locomotives."

The twenty-fourth annual dinner of the Traffic Club of Baltimore was held on February 2 at the Lord Baltimore Hotel, Baltimore, Md. At the affair, which was attended by 541 members and guests, the following officers were elected for the year 1937: President, George E. C. Garrett; first vice-president, Louis J. Zinser; second vice-president, George W. Kraus; third vice-president, J. E. Harrison; secretary, C. F. Johnson; treasurer, J. B. Wilkes.

Felix L. McManus, vice-president of the National Refractories Company, was elected president of the Traffic Club of Philadelphia, at the annual election held on February 8. Other officers chosen are: Vice-presidents—O. J. Dean, traffic manager, Susquehanna Collieries Company; Emory Eysmans, commercial agent, Southern Steamship Company; Harold J. Fink, commercial agent, Norfolk & Western; A. A. Gallagher, general southern freight agent, Delaware & Hudson; and G. O. Hodge, traffic manager, Phoenix Iron Company. William H. Montgomery, freight representative of the Pennsylvania,

was re-elected secretary for the twenty-first consecutive term; T. Noel Butler, traffic manager, Wistar, Underhill & Company, was re-elected treasurer, while George J. Lincoln, assistant general agent, Chicago, Milwaukee, St. Paul & Pacific, was chosen historian.

New York's First "Snow Train" Excursions of Winter

New York's first one-day "snow train" excursions of this winter were operated on Sunday, February 7, by the West Shore and the New York, New Haven & Hartford. Previous trains scheduled by these and other roads, as well as those scheduled for last Sunday by other roads, have been postponed because of the lack of snow at destination points. Meanwhile the Boston & Maine operated several snow trains out of Boston and other Massachusetts cities to points in northern New England and the Reading originated one in Philadelphia which was operated to Bear Mountain, N. Y.

The West Shore train went from New York to Phoenicia, N. Y., operating in two sections and carrying 975 persons. This road also carried approximately 500 persons to Bear Mountain on its regular Sunday excursion trains, and handled the Reading's Philadelphia-Bear Mountain train from Weehawken, N. J., to destination. The latter carried 375 persons.

While the New Haven, because of snow conditions, has been unable thus far to operate any of its regularly scheduled winter sports excursions, it sent out of New York last Sunday an advance section of its regular Sunday excursion train to the Berkshires, carrying 375 winter sports enthusiasts to Great Barrington, Mass., and Pittsfield.

Pennsylvania Veterans Dine

The seventeenth annual dinner and entertainment of the Pennsylvania System Veteran Employees' Association of the general office at Philadelphia, Pa., was held on the evening of February 5. These annual affairs have become so popular that it was necessary to use the floor of the convention hall at Philadelphia for the dinner. More than 2,000 members of the association were present, and as the dinner closed and before the entertainment started, several thousands of their friends took seats in the balcony.

In the absence of President Clement, because of unavoidable reasons, the P. R. R. vice-president in charge of operation—J. F. Deasy—made a brief address. Members of the association must have served the Pennsylvania for 21 years. On the system as a whole, Mr. Deasy said, there are now about 50,000 employees of veteran rank, or not far from half the entire active working force. The veterans gathered at the dinner represented approximately 65,000 years of service.

Mr. Deasy also commented upon the important projects which have been carried out by the Pennsylvania in recent years, the most noteworthy of which was the electrification program between New York, Philadelphia, Baltimore, Md., and Washington, D. C. It is now proposed to

push the electrified territory as far west as Harrisburg, which will provide employment for about 10,000 men on the project itself, and as many more in the supply and equipment industries. "Improvement in individual effort, co-operation and teamwork," said Mr. Deasy, "have always been paralleled with the policy of improvement and progress in facilities, which has continually given us better and better tools with which to do our work."

At the business meeting which preceded the dinner, the following officers were elected: President, Walter C. Applegate, executive department; first vice-president, G. H. Fortenbacher, accounting department; second vice-president, J. W. Hagerly, purchasing department; third vice-president, Carl H. Jeary, operating department; secretary, Charles P. Brady, personnel department; treasurer, R. E. Williams, secretary's department.

After the dinner the tables were moved from the main floor and the diners moved back under the balconies. This made possible an exhibition drill by the Henry H. Houston Post, American Legion, drum and bugle corps.

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings, and places of meetings:

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 3400, Empire State Bldg., New York, N. Y.
ALLIED RAILWAY SUPPLY ASSOCIATION.—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago, Ill. To meet with Air Brake Association, Car Department Officers' Association, International Railway Master Blacksmiths' Association, International Railway General Foremen's Association and the Master Boiler Makers' Association.
AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.
AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 816 McCormick Bldg., Chicago, Ill. Annual meeting, September, 1937, Boston, Mass.
AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York, N. Y.
AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting, June 15-17, 1937, Palmer House, Chicago, Ill.
AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill.
AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill. Annual meeting, October 11-13, 1937, Mayflower Hotel, Washington, D. C.
AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, October, 19-21, 1937, Hotel Stevens, Chicago, Ill. Exhibit by Bridge and Building Supply Men's Association.
AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York, N. Y.
AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—E. J. Huddy, Louisville & Nashville R. R., Louisville, Ky.
AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the Association of American Railroads, Division IV.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 16-18, 1937, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, at the Coliseum.
AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—M. W. Jones, Baltimore & Ohio R. R., Mt. Royal Station, Baltimore, Md.
AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill.
AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—C. E. Davies, 29 West 39th St., New York, N. Y.
Railroad Division.—Marion B. Richardson, 21 Hazel Ave., Livingston, N. J.
AMERICAN TRANSIT ASSOCIATION.—Guy C. Heck-

er, 292 Madison Ave., New York, N. Y.
AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C.
ASSOCIATION OF AMERICAN RAILROADS.—H. J. Forster, Transportation Bldg., Washington, D. C.
Operations and Maintenance Department.—J. M. Symes, Vice-President, Transportation Bldg., Washington, D. C.
Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Freight Station Section.—R. O. Wells, 59 E. Van Buren St., Chicago, Ill.
Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y. Annual meeting, May 11-13, 1937, Hotel Statler, St. Louis, Mo.
Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting, Oct. 5-7, 1937, Chicago, Ill.
Division II.—Transportation.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.
Division IV.—Engineering.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 16-18, 1937, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, at the Coliseum.
Construction and Maintenance Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 16-18, 1937, Palmer House, Chicago, Ill.
Electrical Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill.
Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y. Annual meeting, March 15-16, 1937, Hotel Stevens, Chicago, Ill.
Division V.—Mechanical.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill. Annual meeting, June 16-23, 1937, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers Association.
Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual meeting, June, 1937, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers Association.
Division VII.—Freight Claims.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill. Annual meeting, June 15-17, 1937, Royal York Hotel, Toronto, Ontario, Canada.
Division VIII.—Motor Transport.—George M. Campbell, Transportation Bldg., Washington, D. C.
Car-Service Division.—C. A. Buch, Transportation Bldg., Washington, D. C.
Traffic Department.—A. F. Cleveland, Vice-President, Transportation Bldg., Washington, D. C.
Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington, D. C.
Accounting Division.—E. R. Ford, Transportation Bldg., Washington, D. C.
Treasury Division.—E. R. Ford, Transportation Bldg., Washington, D. C.
ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Chief Clerk and Claim Agent, General Claims Dept., Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, May 26-28, 1937, Netherland Plaza Hotel, Cincinnati, Ohio.
ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., 1519 Daily News Bldg., 400 W. Madison St., Chicago, Ill. Exhibit by Railway Electrical Supply Manufacturers' Association.
BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—W. S. Carlisle, National Lead Company, 900 W. 18th St., Chicago, Ill. Meets with American Railway Bridge and Building Association.
CANADIAN RAILWAY CLUB.—C. R. Crook, 2271 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.
CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 S. Morgan St., Chicago, Ill.
CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.
CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—E. G. Bishop, Illinois Central System, East St. Louis, Ill. Regular meetings, third Tuesday of each month except June, July and August, Hotel Statler, St. Louis, Mo.
CENTRAL RAILWAY CLUB OF BUFFALO.—Mrs. M.

D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler, Buffalo, N. Y.
INTERNATIONAL RAILWAY FUEL ASSOCIATION.—(See Railway Fuel and Traveling Engineers' Association.)
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.
INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.
MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Annual meeting, September, 1937, Hotel Sherman, Chicago, Ill.
NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Clyde S. Bailey, 810 18th St., N. W., Washington, D. C. Annual meeting, August 31-September 3, 1937, Salt Lake City, Utah.
NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. H. White (Pres. and Sec'y), Room 1826, 208 S. La Salle St., Chicago, Ill. Exhibit at A. R. E. A. Convention, March 15-18, 1937, The Coliseum, Chicago, Ill.
NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Touraine, Boston, Mass.
NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July and August, 29 W. 39th St., New York, N. Y.
PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Oakland, excepting June at Los Angeles and October at Sacramento.
RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago, Ill.
RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 600 W. Jackson Blvd., Chicago, Ill. Meets with Association of Railway Electrical Engineers.
RAILWAY FIRE PROTECTION ASSOCIATION.—P. A. Bissell, 40 Broad St., Boston, Mass.
RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.—T. Duff Smith, 1660 Old Colony Bldg., Chicago, Ill.
RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. To meet with Mechanical Division and Purchases and Store Division, Association of American Railroads, June 16-23, 1937, Atlantic City, N. J.
RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R. Division I.
RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 1438 Syndicate Trust Bldg., St. Louis, Mo.
ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 14-16, 1937, Hotel Stevens, Chicago, Ill.
SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R. Signal Section.
SOCIETY OF OFFICERS, UNITED ASSOCIATION OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 9-10, 1937, Richmond, Va.
SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—D. W. Brantley, C. of Ga. Ry., Savannah, Ga.
TOOL FOREMEN SUPPLIERS' ASSOCIATION.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.
TORONTO RAILWAY CLUB.—R. H. Burgess, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.
TRACK SUPPLY ASSOCIATION.—D. J. Higgins, Gardner-Denver Company, 332 S. Michigan Ave., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.
TRAVELING ENGINEERS' ASSOCIATION.—(See Railway Fuel and Traveling Engineers' Association.)
WESTERN RAILWAY CLUB.—C. L. Emerson, C. M., St. P. & P., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Supply Trade

General Railway Signal Company Annual Report

The General Railway Signal Company for the year ended December 31, 1936, reported a net income of \$194,109 after provisions for depreciation and federal and state income taxes. This compares with a 1935 net of \$698,934.

The report states that the company entered 1936 with "a very small volume of orders on hand," but, due to better railway

Varnish Company, Chicago, and is a member of the executive committee of the National Paint, Varnish and Lacquer Association and past president of the American Paint and Varnish Manufacturers' Association.

R. D. Bartlett, assistant to the president of the **Chicago Railway Equipment Company**, Chicago, has been promoted to vice-president in charge of manufacture.

Charles B. Veit has been appointed sales manager of the Wright Manufacturing division of the **American Chain &**

Equipment and Supplies

LOCOMOTIVES

THE ROBERVAL & SAGUENAY is inquiring for one locomotive of the 2-8-2 type.

THE PERE MARQUETTE has ordered 11 locomotive tenders from the American Locomotive Company. These tenders will each have a capacity of 22 tons of coal and 22,000 gallons of water.

THE CANADIAN PACIFIC has ordered 30 Hudson type (4-6-4) locomotives and tenders from the Montreal Locomotive Works, Ltd. These locomotives will have 275-lb. boiler pressure, and 45,000-lb. tractive effort; five of the locomotives will be equipped with boosters.

FREIGHT CARS

THE LOUISIANA & ARKANSAS has ordered 100 box cars from the Pullman-Standard Car Manufacturing Company.

THE MEXICAN RAILWAY has ordered 50 box cars from the Pressed Steel Car Company.

THE NEWBURGH & SOUTH SHORE is inquiring for 100 gondola cars of 50 tons' capacity.

THE LOUISVILLE & NASHVILLE has ordered 27 steel Hart selective ballast cars of 50 tons' capacity from the American Car & Foundry Company.

THE GRAND TRUNK WESTERN is inquiring for 200 refrigerator cars of 40 tons' capacity, and 200 automobile cars of 50 tons' capacity. This is in addition to its inquiry for 100 gondola cars, reported in the *Railway Age* of January 30.

THE CHICAGO & ILLINOIS MIDLAND has ordered 100 hopper cars and 100 gondola cars from the Pullman-Standard Car Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of January 9.

THE DETROIT, TOLEDO & IRONTON is inquiring for 800 freight cars, including 500 box cars and 300 automobile cars, 100 of the latter to be equipped with racks. All of the above cars are to be of 50 tons' capacity.

THE CANADIAN PACIFIC has placed orders for 3,600 freight cars as follows:

| No. | Type | Capacity Tons | Builder |
|------|---------|---------------|----------------------------|
| 1900 | Box | 40 | Canadian Car & Foundry Co. |
| 1100 | Box | 40 | National Steel Car Corp. |
| 300 | Hopper | 50 | National Steel Car Corp. |
| 200 | Gondola | 50 | National Steel Car Corp. |
| 100 | Gondola | 75 | National Steel Car Corp. |

PASSENGER CARS

THE BOARD OF TRANSPORTATION, CITY OF NEW YORK, is asking for bids until 11:30

GENERAL RAILWAY SIGNAL COMPANY

Profit and Loss Account for the Year Ended December 31, 1936

| | | |
|---|-----------|-------------|
| Gross Operating Profit, before Maintenance, Repairs and Depreciation... | | \$1,193,707 |
| Deduct: | | |
| Maintenance and Repairs | \$ 55,379 | |
| Depreciation of Buildings, Machinery and Operating Equipment..... | 96,497 | |
| Amortization of Patents and Development..... | 202,068 | |
| Selling, General and Administrative Expenses..... | 720,347 | |
| Federal Capital Stock Tax..... | 10,301 | 1,084,592 |
| Net Operating Profit..... | | 109,115 |
| Loss on Sales of Marketable Securities..... | 23,210 | |
| Less Appropriated from Reserve..... | 23,210 | |
| Interest, Dividends and Sundry Receipts (net)..... | | 114,269 |
| Provision for Federal and State Income Taxes (federal surtax not assessable) | | 223,384 |
| | | 29,275 |
| Net Income for Year..... | \$ | 194,109 |
| Surplus Account | | |
| Earned Surplus: | | |
| Earned Surplus as at December 31, 1935..... | | \$1,343,322 |
| Restoration of portion of reserve for shrinkage in value of marketable securities | | 250,000 |
| Net income for the year ended December 31, 1936..... | | 194,109 |
| | | 1,787,431 |
| Dividends paid, less dividends on treasury stock: | | |
| Preferred—6% | \$138,228 | |
| Common—\$1.00 per share..... | 321,030 | 459,258 |
| Earned Surplus as at December 31, 1936..... | | 1,328,173 |
| Paid-in Surplus: | | |
| Paid-in Surplus at December 31, 1935 and 1936..... | | 1,737,751 |
| Total Surplus, December 31, 1936..... | | \$3,065,924 |

conditions, bookings improved in the latter part of last year so that the total for the year as a whole was 2.8 times that of 1935; and the carry-over into 1937 equalled 5.9 times that of the previous year.

During the depression, the report continues, the company's engineers devoted much of their time to the development of several new systems "designed to safeguard and expedite modern high speed train movements and to effect marked economies in railroad operation." It therefore notes with gratification that in 1936 "the value of orders booked for these newly developed systems amounted to approximately 70 per cent of the total bookings for all new signaling projects."

The profit and loss and surplus accounts for the year ended December 31, 1936, are shown in the accompanying table.

The New York Belting & Packing Company, Passaic, N. J., has appointed **Crerar, Adams & Company**, Chicago, its distributor in that territory.

Wells Martin has been elected a vice-president of **Thomas J. Crowley, Inc.**, New York, in full charge of the activities of the corporation in the Chicago and northwest territory, with headquarters at Chicago. Mr. Martin is also vice-president and general manager of the Martin

Cable Company, Inc., with headquarters at York, Pa., and **S. J. Woodworth** has been appointed district manager of the same division for the New York territory, with headquarters at New York.

Robert P. Woods, president of the **Consumers Tie Service Company**, Kansas City, Mo., has purchased the interests of **B. W. O'Donnell** and **D. A. O'Donnell**, and they have severed their connections with this company.

J. L. McCaffrey, manager of domestic sales of the **International Harvester Company**, Chicago, has been promoted to director of domestic and Canadian sales, and has been succeeded by **W. F. McAfee**, manager of domestic motor truck sales, who in turn has been succeeded by **P. V. Moulder**, assistant manager of the Eastern district.

OBITUARY

Henry E. Sheldon, president, and founder of the Allegheny Steel Company, Brackenridge, Pa., died at his home in Pittsburgh, Pa., on February 10, at the age of 75 years. In 1932, Mr. Sheldon announced a new metallurgical development permitting ordinary carbon steel to be clad with stainless steel.

a.m., March 5, at 250 Hudson street, New York City, for 150 steel passenger cars for service on the Independent Subway System, in New York, previous bids having been rejected, as was reported in the *Railway Age* of February 6.

THE ERIE is inquiring for 80 milk cars.

THE SOUTHERN PACIFIC has ordered 41 passenger cars from the Pullman-Standard Car Manufacturing Company, in addition to the 24 cars ordered last year for use in the new Daylight. Of the 41 cars, 25 are for general service and 16 are for the Sunbeam of the Texas & New Orleans.

IRON AND STEEL

THE ATCHISON, TOPEKA & SANTA FE has ordered 1,330 tons of structural steel for bridge work from the American Bridge Company.

NEW YORK CENTRAL.—Bids will be received on February 16 for 6,000 tons of steel for use on the West Side Improvements, between 135th street and 146th street, New York City.

MOTOR VEHICLES

THE SOUTHEASTERN GREYHOUND LINES has ordered from the American Car & Foundry Motors Company 20 A.C.F. motor coaches powered with Hall-Scott engines.

Construction

NEW YORK & LONG BRANCH.—A contract has been given to A. S. Wikstrom, Bound Brook, N. J., for the construction of a concrete substructure and miscellaneous construction work on bridge 30/43, over Big Shark river, Belmar-Avon, N. J., to cost from \$55,000 to \$60,000, and a contract has been given to the Phoenix Bridge Company, New York, for the construction of a Scherzer rolling lift bridge at this site, to cost between \$75,000 and \$80,000. The latter work calls for the use of 357 tons of steel.

NEW YORK CENTRAL.—Contracts have been let as follows: To the Thomas Crimmins Contracting Company, New York, for the construction of the 11th avenue viaduct and approaches and change of grade in New York City; to the Poirier & McLane Corporation, New York, for the construction of the substructure and superstructure, between West 121st and West 124th streets, New York; to the Bates & Rogers Construction Company, Staten Island, New York, for the substructure and superstructure of South Ann street, at Sixth street, South Second street, South Fifth and Sixth streets, at Little Falls, N. Y.; to the Metzger Construction Company, Buffalo, N. Y., for the substructure and superstructure of Sheridan Drive at Tonawanda (N. Y.) station.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Acquisition*.—The Interstate Commerce Commission, Division 5, has authorized the Santa Fe Transportation Company to purchase the property and operating rights of the Rex Transfer Company, operating trucks in Southern California.

ATCHISON, TOPEKA & SANTA FE.—*Equipment Trust Certificates*.—This company has applied to the Interstate Commerce Commission for authority to assume liability for \$13,800,000 of 2¼ per cent equipment trust certificates, maturing serially in installments of \$920,000 on February 15, from 1938 to 1952.

ATCHISON, TOPEKA & SANTA FE.—*Acquisition of Truck Lines*.—Division 5 of the Interstate Commerce Commission has issued an order staying the effect of the proposed order of Examiner Robert R. Hendon recommending conditionally that the Southern Kansas Stage Lines be authorized to acquire the property of the Hewitt Truck Line but that the commission deny similar applications as to the Harris Freight Line and the Burton Truck Line.

ATLANTIC COAST LINE-LOUISVILLE & NASHVILLE.—*Equipment Trust Certificates*.—These companies have applied to the Interstate Commerce Commission for authority to assume liability for \$1,875,000 of 2¼ per cent serial equipment trust certificates, maturing in equal installments of \$125,000 on March 1 of each year from 1938 to 1952.

BANGOR & AROOSTOOK.—*Preferred Stock*.—Of the issue of new 5 per cent cumulative preferred stock of this company, which was offered to holders of a called issue of 7 per cent preferred and to common stockholders, 28,446 shares were taken by stockholders and 9,834 shares were sold to the underwriters. Of \$3,480,000 of the 7 per cent preferred called for redemption at 110, holders of \$1,048,120 elected to take the new stock rather than cash in payment.

BESSEMER & LAKE ERIE.—*Equipment Trust Certificates*.—This company has applied to the Interstate Commerce Commission for authority to assume liability for \$6,700,000 of 2¼ per cent serial equipment trust certificates, maturing in 10 equal annual installments on March 1, from 1938 to 1947.

BOSTON & MAINE.—*Bonds*.—This company has applied to the Interstate Commerce Commission for authority to issue \$5,000,000 of 3 per cent bonds maturing serially in installments of \$200,000 on January 1 from 1938 to 1949 inclusive. The bonds will be used to refund a like amount of 4 per cent Fitchburg Railroad bonds which matured on February 1.

BOSTON & MAINE.—*Securities*.—The Interstate Commerce Commission, Division 4, has modified its order of July 10, 1934, and September 24, 1935, so as to permit this company to renew, extend, or reissue \$5,500,000 of notes, or to issue new notes

in substitution therefor, the notes to bear interest at not exceeding 4½ per cent, and the latest maturity date to be February 1, 1939. Division 4 has also modified its order of September 24, 1935, so as to permit this company to pledge and repledge, from time to time to and including February 1, 1939, all or any part of \$7,500,000 of its first mortgage 6 per cent gold bonds, as collateral security for short-term notes.

CENTRAL OF GEORGIA.—*Bonds*.—The Central Railroad & Banking Company, H. D. Pollard, receiver of the Central of Georgia, and the Central of Georgia have applied to the Interstate Commerce Commission for authority to extend the maturity date of \$4,840,000 of 5 per cent collateral trust bonds and guarantee the interest from May 1 to May 1, 1942.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Abandonment*.—The trustees have applied to the Interstate Commerce Commission for authority to abandon a branch line extending from Turkey River Junction, Ia., to West Union, 58 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Merger*.—Examiner R. R. Molster of the Interstate Commerce Commission in a proposed report has recommended that the commission find that the provisions of section 5(4) of the interstate commerce act are not applicable to the proposed merger, by trustees in reorganization proceedings, of operation of the railroad properties of this company and the Chicago, Rock Island & Gulf during the remainder of the trusteeships. Examiner Molster objects to the merger on the ground that it would be only of a temporary nature and would not be in furtherance of the commission's consolidation plan.

JAMESTOWN, WESTFIELD & NORTHWESTERN.—*Abandonment*.—The Interstate Commerce Commission, Division 4, has rescinded its order of August 10, 1935, authorizing this company to abandon a part of its main line extending southward from Westfield, N. Y., to Jamestown, 31 miles, on the ground that the company has not complied with the condition of the commission that it sell the line for \$100,000. The commission has also denied the application of the Erie to purchase the line and terminals of this company in Jamestown, N. Y., which are leased to the Erie, on the ground that the purchase is not in harmony with and in furtherance of the commission's consolidation plan, and that it does not promote the public interest. Commissioner Mahaffie wrote a dissenting opinion.

LOUISIANA & ARKANSAS.—*Acquisition*.—This company has applied to the Interstate Commerce Commission for authority to purchase the property of the Rock Island, Arkansas & Louisiana. The company proposes to assume the outstanding bonded debt of \$14,862,000 and to give to each holder of a \$1000 bond a \$400 bond of the Louisiana & Arkansas and one share of its preferred stock with a par value of \$100. This company has also applied to the commission for authority to issue \$5,944,000 of first mortgage bonds and \$1,486,200 of 4 per cent preferred stock with

a par value of \$50 a share. The bonds will bear interest at the rate of 1 per cent the first year, 1½ per cent the second, and 3 per cent thereafter.

LOUISVILLE & NASHVILLE.—Abandonment.—The Interstate Commerce Commission, Division 4, has authorized this company to abandon its line extending from Saxton, Ky., to Jellico, 2.8 miles.

MISSOURI-KANSAS-TEXAS. — Equipment Trust Certificates.—The Interstate Commerce Commission, Division 4, has authorized this company to assume liability for \$3,750,000 of equipment trust certificates, series 1937, maturing in annual installments of \$250,000 on February 15, from 1938 to 1952. The issue has been sold to Evans, Stillman & Co., and Clark, Dodge & Co., at 98.827, making the interest cost to the railroad approximately 2.68 per cent.

NEW YORK, NEW HAVEN & HARTFORD.—Abandonment.—The trustees have applied to the Interstate Commerce Commission for authority to abandon the following lines: From East Warren station, R. I., to Fall River, 33,500 feet; from West Hanover, Mass., to Hanover, 22,100 feet; from Randolph station, Mass., to Stroughton Junction, 26,700 feet; from Elmwood station, Mass., to Stanley station, 6,100 feet; from Whitman station, Mass., to East Bridgewater, 17,500 feet; from Westfield station, Mass., to Eastondale, 24,000 feet; and from Plymouth station, Mass., to North Carver station, 39,200 feet.

NEW YORK, NEW HAVEN & HARTFORD.—Exceptions to Proposed Report.—The trustees have filed with the Interstate Commerce Commission exceptions to the proposed report of Examiner Mohundro of an investigation into New Haven affairs in which estimates were made of the company's losses from "outside" investments. The exceptions state that "just what is meant by 'constructive losses' is very difficult if not impossible to determine from the record and proposed report. Admittedly it is impossible to determine what this supposed burden of carrying charges actually amounted to or even the form or amount of investments in outside companies." In a further discussion of these "losses" the trustees say that "no allowance has been made for any benefits, other than income directly received, accruing to the respondent from any investment," and that "the proposed report, while impliedly admitting the existence of such indirect benefits, disregards them on the ground that 'they are so speculative that it is not practicable to measure them.' Constructive gains could not be measured, but the proposed report shows that constructive losses have been computed wherever any possible basis, however speculative, could be found. Constructive and all other sorts of gains or benefits from the investments have been ignored." "The result," according to the statement, "is a picture of the dark side only and not a complete portrayal of the total result of the respondents' investment."

PENNSYLVANIA.—Securities.—This company has applied to the Interstate Commerce Commission for authority to issue

and sell \$52,670,700 of 15-year 3¼ per cent convertible debenture bonds, convertible into a like amount of capital stock at a par value of \$50; and to issue stock issuable upon the conversion of the bonds. The bonds will be dated April 1 and will mature on April 1, 1952. The issue has been sold to Kuhn, Loeb & Co., at a commission equal to 1¼ per cent of the total amount of the bonds plus an added commission of ¾ per cent on each \$1,000 of bonds not subscribed for by stockholders and purchased by bankers at 100 per cent of the principal amount.

SOUTHERN PACIFIC.—Acquisition.—The Southern Pacific Transport Company has applied to the Interstate Commerce Commission for authority to purchase, lease, or contract to operate the McCauley Transfer Company.

UNION.—Equipment Trust Certificates.—This company has applied to the Interstate Commerce Commission for authority to assume liability for \$2,380,000 of 2½ per cent serial equipment trust certificates, maturing in 14 equal annual installments of \$170,000 on March 1, from 1938 to 1951.

WESTERN PACIFIC.—Reorganization.—The Interstate Commerce Commission, Division 4, has denied the Missouri Pacific and Guy A. Thompson, trustee of the Missouri Pacific, the right to intervene in the Western Pacific reorganization proceedings.

WISCONSIN & MICHIGAN.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Bagley Junction, Wis., to Iron Mountain, 62 miles; and from Aragon Junction, Mich., to Norway, 5.5 miles; and terminals in Menominee, Mich.; also operation under trackage rights over the Chicago, Milwaukee, St. Paul & Pacific between Bagley Junction, Wis., and Menominee, Mich., 8.5 miles.

YOSEMITE VALLEY.—Trustee Ratification.—The Interstate Commerce Commission, Division 4, has ratified the appointment of Howard C. Bonsall as trustee of the property of this company.

Average Prices of Stocks and Bonds

| | Feb. 9 | Last week | Last year |
|---|--------|-----------|-----------|
| Average price of 20 representative railway stocks.. | 56.60 | 54.15 | 48.67 |
| Average price of 20 representative railway bonds.. | 84.38 | 83.98 | 81.36 |

Dividends Declared

Canadian Pacific.—Preferred, 1 per cent, payable April 1 to holders of record March 1. Last previous payment was on October 1, 1932.

Cleveland & Pittsburgh.—Guaranteed, 87½c, quarterly; Special Guaranteed, 50c, quarterly, both payable March 1 to holders of record February 10. Similar dividends have been declared for the other quarters of the year.

Erie & Pittsburgh.—7 Per Cent Guaranteed, 87½c, payable March 10 to holders of record February 17; Guaranteed Betterment, 80c, quarterly payable March 1 to holders of record February 27. Similar dividends have been declared for the other quarters of the year.

Northern R. R. of New Jersey.—4 Per Cent Guaranteed, \$1.00, quarterly, payable March 1 to holders of record February 18.

Pittsburgh, Ft. Wayne & Chicago.—\$1.75, quarterly; 7 Per Cent Preferred, \$1.75, quarterly, both payable April 1 to holders of record March 10.

Pittsburgh, Youngstown & Ashtabula.—7 Per Cent Preferred, \$1.75, quarterly, payable March 1 to holders of record February 20. Similar dividend has been declared for the other quarters of the year.

Railway Officers

EXECUTIVE

A. T. Lowmaster, whose appointment as vice-president and general manager of the Chesapeake & Ohio at Richmond, Va., was reported in the *Railway Age* of December 26, was born in McCutchenville, Ohio, on August 29, 1882. After graduating from high school and taking a course in a business college, he entered railway service on October 3, 1900, as clerk and



A. T. Lowmaster

errand boy in the master carpenter's office of the Erie. From July, 1903, to March, 1904, he was clerk to the division engineer of the Erie at Huntington, Ind., and from the latter date to June, 1906, he was clerk in the trainmaster's office in that city. Mr. Lowmaster served as voucher and statistical clerk in the general agent's office of that road at Chicago from June, 1906, to September 1, 1910, when he became chief clerk to the general agent at Chicago. On April 1, 1911, Mr. Lowmaster entered the service of the Chesapeake & Ohio as chief clerk to general agent at Chicago. He was appointed general agent at Chicago on March 1, 1912, and four years later was promoted to the position of superintendent of terminals there. On November 1, 1917, he was transferred to Richmond as assistant superintendent of transportation, and in July, 1923, he was promoted to superintendent of transportation. Mr. Lowmaster was appointed general superintendent of transportation on October 1, 1926, and advanced to the position of general manager of the Chesapeake & Ohio on February 21, 1933, the position he held until he was appointed also vice-president, effective January 1.

FINANCIAL, LEGAL AND ACCOUNTING

E. C. Matthias, attorney for western Washington for the Great Northern, has been appointed general attorney of the Lines West, with headquarters at Seattle, Wash. **C. S. Albert** has been appointed attorney for western Washington, and

A. J. Clynych has been appointed commerce attorney of the Lines West.

H. F. Brahany, auditor of disbursements of the Chesapeake & Ohio, has been appointed auditor, with headquarters as before at Richmond, Va. **H. L. Hazlewood**, assistant auditor of disbursements, with headquarters at Huntington, W. Va., has been appointed auditor of disbursements, with headquarters at Richmond, succeeding Mr. Brahany. **M. B. Parker** has been appointed assistant auditor of disbursements, with headquarters at Huntington, succeeding Mr. Hazlewood.

OPERATING

E. K. Lucy has been appointed trainmaster of the Memphis division of the Missouri Pacific with headquarters at Wynne, Ark., to succeed **R. L. Hardgrave**, deceased.

L. B. Kendall, assistant superintendent on the Chicago & North Western at Winoona, Minn., has been appointed superintendent of telegraph of this company and the Western Union Telegraph Company, with headquarters at Chicago, to succeed **R. W. Norris**, deceased.

F. C. Paulsen, superintendent on the Central district of the Union Pacific at Pocatello, Idaho, has been appointed superintendent of the newly-created Idaho division with the same headquarters, effective February 1. On the same date **B. F. Wells**, assistant superintendent at Denver, Colo., was transferred to the Southwestern district with headquarters at Las Vegas, Nev.

R. B. Smith, superintendent of traffic of the Railway Express Agency with headquarters at Chicago, has been appointed superintendent of the Western Illinois and Eastern Iowa division, with the same headquarters, to succeed **J. G. Shannon**, who has been appointed superintendent of organization on the staff of the president of the company at New York. **M. H. Wolfe**, district sales manager at Omaha, Neb., has been appointed superintendent of traffic at Chicago, to succeed Mr. Smith.

Ralph E. Titus, whose appointment as superintendent of the Utah division of the Union Pacific with headquarters at Pocatello, Ida., was reported in the *Railway Age* of February 6, has been connected with this company for more than 30 years. He was born on September 22, 1887, at Reedsburg, Wis., and entered railway service with the Chicago & North Western in June, 1903, as a telegraph operator. Three years later Mr. Titus left this company to go with the Union Pacific, where he served as a telegraph operator until 1909. In that year he was advanced to dispatcher, which position he held until 1912, when he was promoted to chief dispatcher. In 1917, Mr. Titus was appointed trainmaster, later being advanced to assistant superintendent, which position he was holding at the time of his recent promotion to superintendent of the Utah division, which was effective on January 1.

William J. Whalen, whose appointment as superintendent on the Chicago,

Milwaukee, St. Paul & Pacific at Terre Haute, Ind., was reported in the *Railway Age* of February 6, has been in the service of this company for nearly 31 years. He was born on March 22, 1893, at Lansing, Iowa, and, beginning in 1906, he served during summer vacation periods as a water boy on maintenance gangs. In 1909 he entered the service permanently and held the positions of timekeeper, assistant extra gang foreman, section foreman and extra gang foreman until August 8, 1916, when he was promoted to roadmaster, serving on the Dubuque and Illinois divisions. From September 1, 1923, to November 1, 1926, he served as trainmaster and roadmaster at Joliet, and from November 1, 1926, to September 1, 1934, he held the position of trainmaster successively at Montevideo, Minn., Aberdeen, S. D., Portage, Wis., and Dubuque, Iowa. At the end of this period he was advanced to assistant superintendent at Perry, Iowa, which position he was holding at the time of his recent promotion to superintendent, which was effective on February 1.

C. J. Lederer, whose appointment as superintendent of transportation of the Railway Express Agency with headquarters at Chicago was reported in the *Railway Age* of January 30, has served with railway express companies for nearly 28 years. Entering the service of Wells



C. J. Lederer

Fargo & Company on April 26, 1909, he served as a porter, caller, assistant foreman and in various clerical capacities at Kansas City, Mo., and in the office of the general manager of transportation at Chicago until April 26, 1918, when he joined the United States Army. Returning from army service on January 1, 1919, Mr. Lederer was appointed a transfer clerk at Chicago for the American Railway Express Company, this company having absorbed Wells Fargo & Co., and on May 20, 1919, he was transferred to Kansas City as bill clerk, being appointed claim clerk at that point on June 15, 1919. On March 8, 1920, Mr. Lederer returned to Chicago as claim clerk supervisor, serving in this and other clerical capacities until October 1, 1924, when he was promoted to supervisor of transportation at Chicago, continuing in this capacity when the American Railway Express Company was taken over by the Railway Express Agency on March 1, 1929. On July 6 of the same year Mr.

Lederer was appointed chief clerk in the transportation department at Chicago, which position he held until his recent promotion to superintendent of transportation at the same point, which was effective on January 1.

J. J. Dowling, superintendent of the Vehicle division, New York City department of the Railway Express Agency, has been appointed general superintendent of



J. J. Dowling

transportation of the Eastern departments, with headquarters at New York, succeeding **F. P. Parkinson**, who has been given a leave of absence because of ill health. **A. Wilkoc**, superintendent of the Eastern New York division, with headquarters at Albany, N. Y., has been appointed superintendent of the Vehicle division, New York City department, with headquarters at New York, succeeding Mr. Dowling. Mr. Dowling, after several years in New York offices and terminals of the Express Agency, became in July, 1912, assistant master of transportation and two years later master of transportation. He then went to Philadelphia as the general manager's assistant and to Newark, N. J., in July, 1918, as general agent. In 1923 Mr. Dowling was transferred to Buffalo, N. Y., as city superintendent in charge of Curtiss Street express terminal. He returned to New York in 1927 as superintendent of the Terminal division. After



A. Wilkoc

six years in terminal work, he was transferred to vehicle operations and became superintendent of the Vehicle division, the

position he held at the time of his recent promotion.

Mr. Wilkoc has been in the express business for 36 years. He served on the staff of the general manager at New York City until 1927, when he was appointed superintendent of the Office division. In June, 1934, Mr. Wilkoc was placed in charge of the Eastern New York division at Albany, which position he held until his recent appointment.

Patrick H. Cummings, whose appointment as superintendent of organization of the Railway Express Agency, with headquarters at Chicago, was reported in the *Railway Age* of January 30, has been in the service of various express companies for nearly 34 years. He was first connected with the National-Northern Pacific Express Company as a porter at Chicago, later serving as a waybill clerk and night depot agent at the same point. From June 15, 1909, until July 1, 1918, he served with the Exclusive Northern Express Company successively as a money clerk, chief clerk and commercial agent at Chicago. On July 1, 1918, when the various express companies were consolidated into the American Railway Express Company, Mr. Cummings was made a clerk at Chicago, later being advanced to chief clerk to the general agent at the same point. On



Patrick H. Cummings

September 1, 1928, he was further promoted to assistant general agent at Chicago, continuing in this capacity with the Railway Express Agency when that company took over the American Railway Express Company in 1929. He was serving as assistant general agent at the time of his recent appointment as superintendent of organization.

E. J. Flanagan, who has been appointed superintendent of organization of the Railway Express Agency with headquarters at Chicago, as announced in the *Railway Age* of January 30, first entered express service with the Adams Express Company as a clerk at Toledo, Ohio, on November 1, 1891. After serving in various clerical capacities at the same point, he was appointed cashier at Toledo on September 1, 1895. On August 22, 1901, he was made agent at the same point and on March 28, 1903, he was made route agent at Alliance, Ohio. Four years later

he was advanced to chief clerk to the superintendent at Columbus, Ohio, and on May 1, 1914, he was made acting superintendent with the same headquarters, returning to the position of agent, at Columbus, on January 1, 1915. On April 1



E. J. Flanagan

of the same year he was sent to Chicago as superintendent, where he was advanced to general superintendent on January 1, 1918. On July 1 of the same year, when the Adams Express Company was absorbed by the American Railway Express Company, Mr. Flanagan was appointed superintendent at Grand Rapids, Mich., remaining in that capacity following March 1, 1929, when the American Railway Express Company was reorganized to form the Railway Express Agency. He was serving as superintendent at Grand Rapids at the time of his recent appointment as superintendent of organization at Chicago.

TRAFFIC

Almer H. Orr has been appointed general agent of the Atlantic Coast Line, with headquarters at Pittsburgh, Pa.

G. W. Frazier has been appointed chief of tariff bureau of the Baltimore & Ohio, with headquarters at Baltimore, Md., succeeding **W. H. Fogle**, deceased.

L. J. Sickel, assistant general freight agent on the Missouri Pacific at St. Louis, Mo., has been promoted to general freight agent, with the same headquarters. **J. S. Smith** has been appointed assistant general freight agent at St. Louis.

D. D. Jamieson, assistant coal freight agent of the Erie, has been appointed coal freight agent, with headquarters as before at New York. **A. E. Barkalow** has been appointed assistant coal freight agent at New York.

J. L. McVay, division freight agent on the Chicago, Rock Island & Pacific at Peoria, Ill., has been promoted to general freight agent, solicitation, with headquarters at Chicago. **E. E. Strickland**, assistant general agent, freight department, with headquarters at Kansas City, Mo., has been appointed assistant general freight agent, solicitation, with the same headquarters. **C. P. Varney**, agent at Kansas City, has been promoted to assistant

general freight agent, solicitation, at St. Louis, Mo., to succeed **A. D. Aiken**. **S. R. Herod** has been appointed Canadian freight and passenger agent, with headquarters at Toronto, Ont., to replace **E. W. Merriam**, who has been appointed general agent at Cincinnati, Ohio, to succeed **J. Merrow, Jr.**, who has been appointed division freight agent, with headquarters at Chicago. These changes will become effective on February 16.

Walter J. Kelly, a member of the auxiliary committee of the Central Freight Association lines, has been appointed assistant to the vice-president in charge of the traffic department of the Association of American Railroads, Washington, D. C., succeeding **Joseph G. Kerr**, resigned to become chairman of the Southern Freight Association.

ENGINEERING AND SIGNALING

W. F. Hart, roadmaster on the Union Pacific at Marysville, Kan., has been promoted to division engineer of the Utah division, with headquarters at Pocatello, Idaho.

William R. Gillam, whose appointment as district engineer of the Southern lines of the Illinois Central system, in-



William R. Gillam

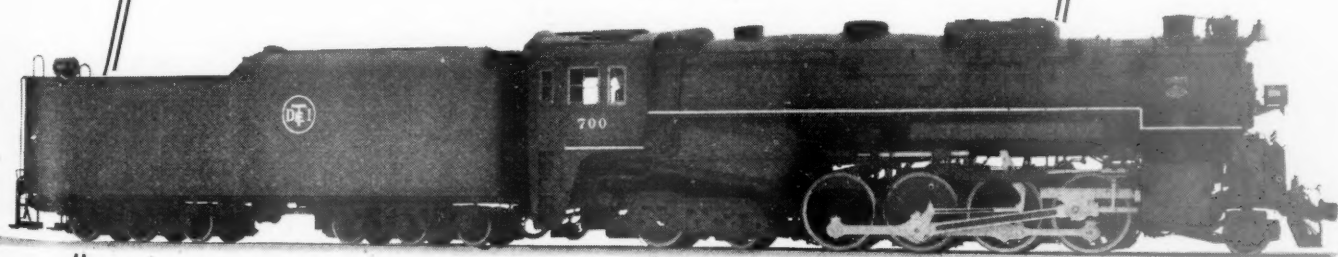
cluding the Yazoo & Mississippi Valley and the Gulf & Ship Island with headquarters at New Orleans, La., was noted in the *Railway Age* of January 16, has been identified with the I. C. for 38 years. Mr. Gillam's first service with the Illinois Central was as an engineer apprentice on the former Chicago division. He served in this capacity and as a rodman and assistant engineer at various points until April 21, 1906, when he was advanced to resident engineer on construction. On May 19, 1907, he was made assistant engineer on construction at Baton Rouge, La., being transferred to the Memphis division on August 15 of the same year. On September 1, 1915, Mr. Gillam was promoted to assistant engineer in the valuation department and on December 10, 1916, he became a track supervisor on the Memphis division. On February 8, 1921, he was appointed assistant engineer, serving in this capacity in the maintenance of way department, in the chief engineer's office and

Continued on next left-hand page

It Is A Matter Of FIGURES!

Improvements in design have made available modern locomotives that, as compared with locomotives ten years old or older, are capable of delivering 25% to 35% increased horsepower without added driving wheel load. The economic advantage of such new power is apparent. It can be financed today through several sources at the lowest rates ever available.

Because of these factors power purchased now will yield unusually high net returns.



LIMA LOCOMOTIVE WORKS, INCORPORATED,

LIMA
LOCOMOTIVE WORKS
INCORPORATED

LIMA, OHIO

in grading work on the lake front at Chicago. On May 1, 1923, Mr. Gillam was appointed assistant roadmaster on the Chicago terminal and on February 1, 1925, he was advanced to roadmaster of the Springfield division, being transferred to the St. Louis division on March 1, 1929. On October 1 of the same year he was promoted to district engineer of the Northern lines, being appointed division engineer with headquarters at Waterloo, Iowa, on September 21, 1931, which position he was holding at the time of his recent promotion to district engineer at New Orleans.

Henry A. Aalberg, who has been appointed assistant chief engineer of the Chicago, Burlington & Quincy, Lines West



Henry A. Aalberg

of the Missouri river, with headquarters at Lincoln, Neb., as reported in the *Railway Age* of January 30, has been in the service of this company for more than 26 years. He was born on September 6, 1887, at Minneapolis, Minn., and received his engineering education at Highland Park college, Des Moines, Iowa. Mr. Aalberg entered railway service with the Burlington on May 16, 1910, serving as a field draftsman, topographer and levelman on location in Wyoming, Colorado and Montana. In September, 1911, he was sent to the office of the assistant chief engineer at Lincoln as a draftsman, where he remained until March, 1912, when he was transferred to the McCook division at Denver, Colo., as an instrumentman on maintenance. In June, 1916, Mr. Aalberg was promoted to division engineer of the Lincoln division with headquarters at Lincoln, remaining in this position until June, 1922, when he was made chief of a locating party in Wyoming. In November of the same year Mr. Aalberg returned to the Lincoln division as division engineer, being transferred to the McCook division, with headquarters at Denver, in February, 1923. He remained at that point as division engineer until his recent promotion to assistant chief engineer, effective February 1.

MECHANICAL

A. C. Melanson, who has been appointed superintendent of motive power and car equipment of the Quebec district of the Canadian National, with headquarters at Quebec, Que., as noted in the *Railway Age* of January 9, entered railway

A New Deal Newspaper on Labor Union Responsibility

All labor unions, in or outside of federal jurisdiction, would greatly strengthen themselves with the public, it seems to us, by insisting on supervised, secret strike votes to allay doubt as to majority backing for purposes and methods adopted by their leaders.

Provision for safeguarding elections and strike votes is included in current proposals to require unions to incorporate themselves and report membership, finances, salaries, etc., as protection against racketeers.

Acceptance of responsibility, with concrete proof of inner integrity and good faith, means great gain in public support. British labor unions have found it so. We believe it would work the same way here.

From an editorial in the New York World-Telegram

service in April, 1911, at Moncton, N. B., as a machinist apprentice. Subsequently he was appointed tracer and then draftsman. In May, 1919, Mr. Melanson was transferred in the latter capacity to Toronto, Ont., and in January, 1922, was made material inspector. He was transferred to Montreal, Que., in July of the following year and a year later to Stratford, Ont., in a similar capacity. In April, 1924, he was promoted to superintendent



A. C. Melanson

of the St. Malo shops at Quebec, the position he held until his recent appointment.

OBITUARY

William T. Wright, president of the Rio Grande & Eagle Pass, died at Philadelphia, Pa., on February 5.

Joseph Wentworth Coxe, who retired in January, 1924, as comptroller of the Norfolk & Western, with headquarters at Roanoke, Va., died at his home in that city at the age of 83.

William R. Callaway, who retired on January 1, 1921, as passenger traffic manager of the Minneapolis, St. Paul & Sault

Ste. Marie at Minneapolis, Minn., died on February 7 at his home at Beverly Hills, Cal., at the age of 84 years.

William A. Kittermaster, who retired on July 1, 1933, as general western freight agent of the Canadian Pacific at Chicago, died on February 3 at his home in Court-right, Ont., at the age of 75 years.

John Francis, who retired in 1925 as general passenger agent of the Chicago, Burlington & Quincy at Chicago, died at his home at Lake Wales, Fla., on February 8.

J. A. Caviezel, vice-president and general manager of the Alabama, Tennessee & Northern, whose death on January 22 at Fort Worth, Tex., was reported in the



J. A. Caviezel

Railway Age of February 6, was born on August 19, 1884, at St. Joseph, Mo. He was graduated from Christian Brothers College (St. Joseph) and entered railway service in 1899 as an office boy on the St. Joseph & Grand Island (now part of the Union Pacific). From August, 1903, to May, 1904, Mr. Caviezel served with the Chicago, Burlington & Quincy in various clerical capacities, then entering the service of the Toledo, St. Louis & Western (now part of the New York, Chicago & St. Louis) at Toledo, Ohio, as a clerk in the accounting department. In 1906, he went with the Gulf, Mobile & Northern as a general bookkeeper in the auditor's office at Mobile, Ala. In November, 1907, he became chief clerk to the auditor of the Alabama, Tennessee & Northern at Mobile and in July of the following year he entered the service of the Missouri & North Arkansas in a similar position at Eureka Springs, Ark. Mr. Caviezel was appointed general auditor of the Jonesboro, Lake City & Eastern (now part of the St. Louis-San Francisco) in September, 1908, remaining with that company until February, 1912, when he was appointed auditor of the Alabama, Tennessee & Northern. He was advanced to superintendent of the same road at York, Ala., in 1913, and two years later he was made general superintendent at Mobile. In November, 1920, he was further advanced to assistant general manager, being appointed general manager in August, 1924. He had been vice-president and general manager since 1929.

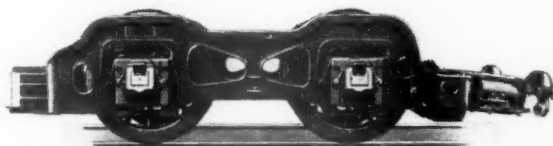
Tables of Revenues and Expenses of Railways begin on next left-hand page

"FRAGILE . . . HANDLE WITH CARE"

[THE BOOSTER CUTS OUT
STARTING SHOCKS]



"No, I really don't mind the trip a bit. John, that's my son, assured me I'd sleep comfortably and I did. I'm completely rested—in fact the trip has been a rest to me. You know I think I've enjoyed it so much I'll want to come again." » » » John wasn't a railroad man but he traveled a lot. When mother went on a visit he picked a train for her that he knew would be comfortable. Boosters always make boosters out of the passengers.



FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK
CHICAGO
MONTREAL

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1936

| Name of road | Av. mileage operated during period | Operating revenues | | | | Operating expenses | | | | Operating ratio | Net from railway operation | Net railway operating income | | |
|---|------------------------------------|--------------------|-----------|--------------------|-----------------------------------|--------------------|---------|------------------|------------|-----------------|----------------------------|------------------------------|---------------------------|--------------------------|
| | | Freight | Passenger | Total (inc. misc.) | Maintenance of way and structures | Equipment | Traffic | Trans- portation | Total | | | Operating income | After depr. & retir. 1936 | Before depr. & ret. 1935 |
| Akron, Canton & Youngstown..... | Dec. 171 | \$201,302 | \$33 | \$201,379 | \$30,353 | \$17,873 | \$9,362 | \$60,506 | \$127,416 | 60.2 | \$82,963 | \$69,464 | \$41,122 | \$51,309 |
| Alton | Dec. 956 | 2,138,606 | 403 | 2,139,009 | 37,174 | 197,966 | 102,657 | 62,431 | 1,410,703 | 62.3 | 854,035 | 702,305 | 483,150 | 353,930 |
| Alton | Dec. 956 | 1,197,874 | 194,642 | 1,392,516 | 161,482 | 2,459,351 | 53,017 | 568,478 | 1,053,907 | 65.5 | 355,240 | 498,345 | 285,333 | 314,509 |
| Alton | Dec. 956 | 12,218,414 | 2,045,308 | 16,417,007 | 2,634,685 | 2,439,551 | 580,402 | 6,129,876 | 12,510,609 | 76.2 | 3,906,398 | 2,912,861 | 416,226 | 1,123,899 |
| Atchison, Topeka & Santa Fe System..... | Dec. 13,226 | 12,375,281 | 1,382,228 | 15,185,805 | 2,011,212 | 3,307,258 | 484,158 | 5,082,774 | 11,296,104 | 74.4 | 3,889,701 | 2,522,575 | 2,454,000 | 3,396,613 |
| Atlanta & West Point..... | Dec. 93 | 109,166 | 27,350 | 136,516 | 16,185 | 54,788 | 8,349 | 45,943 | 136,239 | 81.3 | 31,412 | 24,011 | 17,282 | 29,799,222 |
| Atlanta, Birmingham & Coast..... | Dec. 93 | 1,241,527 | 279,990 | 1,804,607 | 215,522 | 391,330 | 99,146 | 704,680 | 1,532,318 | 84.9 | 272,289 | 175,967 | 8,555 | 17,282 |
| Western of Alabama..... | Dec. 133 | 103,840 | 27,698 | 152,182 | 16,463 | 24,237 | 7,027 | 75,195 | 132,107 | 86.8 | 20,075 | 4,460 | 13,512 | 5,529 |
| Atlanta, Birmingham & Coast..... | Dec. 639 | 1,117,632 | 283,655 | 1,595,383 | 218,923 | 386,920 | 84,874 | 643,463 | 1,437,682 | 90.1 | 157,701 | 29,663 | 50,732 | 201,003 |
| Atlanta, Birmingham & Coast..... | Dec. 639 | 254,228 | 23,344 | 309,921 | 29,420 | 62,457 | 23,528 | 149,925 | 321,095 | 103.6 | -11,174 | -43,399 | -59,058 | -42,371 |
| Atlanta, Birmingham & Coast..... | Dec. 639 | 2,850,518 | 202,612 | 3,422,307 | 552,100 | 614,285 | 269,527 | 1,314,291 | 3,043,758 | 88.9 | 378,549 | 158,660 | -14,664 | 122,742 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
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| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
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| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
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| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 508,881 | 320,345 |
| Atlantic Coast Line..... | Dec. 5,102 | 3,085,784 | 616,656 | 4,255,209 | 383,411 | 823,858 | 166,614 | 1,635,145 | 3,213,797 | 75.5 | 1,041,412 | 651,412 | 5 | |

Continued on next left-hand page



ARCH OF CONSTANTINE, ROME

The Arch of Constantine was built in 312 A. D. to honor his victory over Maxentius at Saxa Rubia. Christians of the fourth century considered this magnificent triumphal arch a symbol of their own triumph also, for it was as a result of that battle that Constantine declared himself in favor of Christianity.

The arch is impressive in size as well as design, mea-

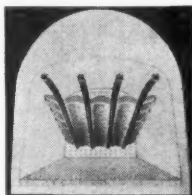
suring 82 feet in length and nearly 68 feet in height.

* * *

Sectional Arches, introduced by the American Arch Company, hold an important place in the history and progress of American Railroads. Not only are they a major factor in fuel economy, but they also have had an important influence in improved fire-box design and modern locomotive operation.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**
*Locomotive Combustion
Specialists* » » »

128,601
131,262
135,339
230,016
1,736,739
301,644
2,253,377
69.4
78.3
683,705
8,150,421
342,132
3,986,209
29,249
340,489
203,600
2,445,619
73,049
958,998
985,349
10,403,998
56,815
598,655
815,849
8,671,123
574
572
Chicago, Indianapolis & Louisville, . . . Dec.
12 mos.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1936—CONTINUED

| Av. mileage operated during period | Name of road | Operating revenues | | | Maintenance of way and equipment | | | Operating expenses | | | Net from railway operation | Net railway operating income | | |
|------------------------------------|--|--------------------|------------|--------------------|----------------------------------|------------|------------|--------------------|------------|-----------------|----------------------------|------------------------------|---------------------------|--------------------------|
| | | Freight | Passenger | Total (inc. misc.) | Way and structures | Equipment | Traffic | Transportation | Total | Operating ratio | | Operating income | After depr. & retir. 1936 | Before depr. & ret. 1935 |
| 12 mos. | Chicago, Rock Island & Pacific..... | 7,532 | 5,115,452 | 6,964,318 | 73,668,144 | 10,415,475 | 16,483,758 | 2,412,177 | 30,537,957 | 64,249,209 | 87.2 | 9,418,935 | 4,076,997 | 4,907,849 |
| 12 mos. | Chicago, Rock Island & Gulf..... | 626 | 261,449 | 261,449 | 400,886 | 32,859 | 48,854 | 16,962 | 125,825 | 249,396 | 62.2 | 151,490 | 127,681 | 71,980 |
| 12 mos. | Chicago, St. Paul, Minneap. & Omaha..... | 626 | 3,068,739 | 343,440 | 4,398,562 | 668,963 | 456,358 | 196,126 | 1,520,603 | 3,152,564 | 71.7 | 1,245,998 | 976,641 | 390,969 |
| 12 mos. | Clinchfield Railroad..... | 1,648 | 1,220,053 | 1,667,940 | 16,799,823 | 243,647 | 240,702 | 40,871 | 731,396 | 1,339,049 | 88.7 | 1,707,774 | 72,748 | 32,466 |
| 12 mos. | Colorado & Southern..... | 1,648 | 15,379,960 | 1,648,219 | 18,328,050 | 2,302,815 | 3,096,935 | 429,271 | 8,503,979 | 15,274,935 | 83.3 | 3,053,115 | 1,838,073 | 1,021,890 |
| 12 mos. | Fort Worth & Denver City..... | 309 | 645,807 | 5,523 | 657,476 | 30,420 | 126,778 | 17,383 | 125,859 | 314,267 | 47.8 | 343,209 | 121,619 | 198,244 |
| 12 mos. | Columbus & Greenville..... | 309 | 5,464,428 | 605,024 | 6,078,225 | 530,552 | 989,673 | 223,002 | 1,898,994 | 4,074,311 | 67.0 | 2,003,914 | 1,594,965 | 1,421,058 |
| 12 mos. | Delaware & Hudson..... | 829 | 2,132,853 | 92,060 | 2,224,913 | 32,339 | 187,685 | 4,049 | 38,610 | 1,023,323 | 89.4 | 191,209 | 138,445 | 143,369 |
| 12 mos. | Delaware, Lackawanna & Western..... | 830 | 3,282,940 | 1,173,472 | 4,456,955 | 3,251,893 | 6,016,915 | 533,806 | 9,202,596 | 20,602,480 | 71.2 | 3,101,740 | 3,163,583 | 1,261,885 |
| 12 mos. | Denver & Rito Grande Western..... | 987 | 36,989,662 | 6,997,709 | 49,728,116 | 4,194,757 | 9,273,366 | 1,379,607 | 22,167,490 | 39,184,541 | 78.8 | 10,543,575 | 6,526,385 | 3,387,608 |
| 12 mos. | Denver & Salt Lake..... | 2,576 | 2,036,767 | 90,585 | 2,235,543 | 234,046 | 552,864 | 74,346 | 800,192 | 1,854,094 | 82.9 | 381,449 | 186,999 | 228,452 |
| 12 mos. | Detroit & Mackinac..... | 242 | 59,493 | 3,778 | 69,681 | 8,829 | 10,834 | 857 | 26,106 | 50,323 | 72.2 | 19,358 | 17,700 | 15,185 |
| 12 mos. | Detroit & Toledo Shore Line..... | 242 | 690,506 | 37,277 | 803,484 | 126,114 | 140,203 | 10,954 | 286,451 | 605,306 | 75.3 | 19,358 | 17,700 | 15,185 |
| 12 mos. | Detroit, Toledo & Ironton..... | 472 | 829,096 | 253 | 875,672 | 68,039 | 69,023 | 15,477 | 168,182 | 356,323 | 40.7 | 519,349 | 434,388 | 393,206 |
| 12 mos. | Duluth, Missabe & Northern..... | 539 | 7,604,597 | 2,895 | 7,851,226 | 770,535 | 983,220 | 133,380 | 1,651,602 | 3,850,348 | 40.5 | 4,000,478 | 3,258,049 | 3,049,938 |
| 12 mos. | Duluth, Winnipeg & Pacific..... | 536 | 16,586,258 | 31,463 | 19,091,036 | 1,845,060 | 2,648,786 | 46,443 | 3,336,238 | 8,397,387 | 41.6 | 10,693,649 | 8,703,234 | 9,593,330 |
| 12 mos. | Elgin, Joliet & Eastern..... | 178 | 122,850 | 2,179 | 128,206 | 13,994 | 20,509 | 3,899 | 51,368 | 94,372 | 73.6 | 33,834 | 25,742 | 15,474 |
| 12 mos. | Erie..... | 434 | 1,757,494 | | 1,996,719 | 135,834 | 425,351 | 14,393 | 674,035 | 1,286,884 | 64.5 | 709,835 | 599,609 | 540,389 |
| 12 mos. | Florida East Coast..... | 434 | 16,397,124 | | 19,111,317 | 1,689,417 | 3,997,730 | 168,260 | 6,724,856 | 13,118,928 | 68.6 | 6,000,389 | 4,666,998 | 4,975,799 |
| 12 mos. | New Jersey & New York..... | 472 | 6,653,157 | 471,607 | 7,694,549 | 545,732 | 1,385,685 | 174,414 | 2,762,799 | 5,170,942 | 67.2 | 2,523,607 | 1,647,565 | 1,611,234 |
| 12 mos. | New York, Susquehanna & Western..... | 2,296 | 73,268,489 | 5,315,350 | 85,005,111 | 6,993,379 | 15,711,879 | 2,047,446 | 30,595,475 | 58,882,551 | 69.3 | 26,122,560 | 20,008,226 | 20,244,827 |
| 12 mos. | Florida East Coast..... | 45 | 19,277 | 47,006 | 68,464 | 5,550 | 12,464 | 532 | 62,706 | 83,643 | 122.2 | -15,179 | -40,189 | -35,880 |
| 12 mos. | Georgia & Florida..... | 45 | 196,516 | 564,803 | 785,849 | 61,229 | 175,875 | 7,325 | 598,919 | 865,469 | 110.1 | -79,620 | -159,055 | -346,052 |
| 12 mos. | Georgia & Florida..... | 214 | 286,106 | 23,627 | 322,824 | 29,055 | 40,355 | 5,323 | 132,042 | 221,339 | 68.6 | 101,485 | 8,561 | -8,430 |
| 12 mos. | Georgia & Florida..... | 215 | 3,018,538 | 287,111 | 3,451,959 | 311,783 | 421,897 | 58,212 | 1,486,189 | 2,440,631 | 70.7 | 1,011,325 | 653,216 | 356,977 |
| 12 mos. | Georgia & Florida..... | 684 | 623,499 | 198,703 | 937,287 | 86,565 | 156,258 | 25,975 | 305,332 | 630,957 | 67.3 | 306,330 | 319,657 | 322,552 |
| 12 mos. | Georgia & Florida..... | 705 | 5,434,470 | 2,235,319 | 8,614,508 | 1,181,019 | 1,625,898 | 269,649 | 2,801,967 | 6,515,854 | 75.6 | 2,098,654 | 1,328,349 | 1,492,594 |
| 12 mos. | Fort Smith & Western..... | 249 | 761,534 | 12,324 | 812,660 | 184,552 | 102,100 | 68,753 | 254,298 | 650,025 | 71.2 | 21,870 | 20,566 | 11,830 |
| 12 mos. | Georgia Railroad..... | 329 | 269,021 | 198,703 | 937,287 | 86,565 | 156,258 | 25,975 | 305,332 | 630,957 | 80.1 | 162,635 | 146,550 | 60,237 |
| 12 mos. | Georgia & Florida..... | 329 | 3,250,491 | 2,235,319 | 8,614,508 | 1,181,019 | 1,625,898 | 269,649 | 2,801,967 | 6,515,854 | 81.1 | 714,346 | 575,467 | 30,039 |
| 12 mos. | Georgia & Florida..... | 408 | 83,490 | 3,373 | 92,962 | 21,901 | 19,648 | 7,190 | 37,308 | 91,868 | 80.8 | 528 | 1,073 | 3,260 |
| 12 mos. | Grand Trunk Western..... | 408 | 1,098,737 | 33,351 | 1,181,662 | 281,499 | 210,635 | 99,223 | 436,851 | 1,096,808 | 99.4 | 528 | 1,073 | 3,260 |
| 12 mos. | Canadian Nat'l Lines in New Eng..... | 1,032 | 21,215,508 | 944,777 | 23,892,910 | 2,921,338 | 4,402,685 | 449,206 | 9,430,359 | 18,241,776 | 76.3 | 5,651,134 | 4,375,655 | 3,780,613 |
| 12 mos. | Great Northern..... | 172 | 91,212 | 5,753 | 105,829 | 23,799 | 33,116 | 1,891 | 67,777 | 137,254 | 129.7 | -31,435 | -29,520 | -52,906 |
| 12 mos. | Great Northern..... | 172 | 1,171,736 | 73,899 | 1,356,327 | 431,051 | 245,570 | 28,493 | 720,926 | 1,336,174 | 113.1 | 1,709,874 | 714,244 | 624,557 |
| 12 mos. | Great Northern..... | 8,093 | 5,238,088 | 489,990 | 6,165,104 | 508,126 | 1,040,200 | 185,039 | 2,514,764 | 4,615,602 | 70.6 | 1,883,502 | 1,302,404 | 1,529,933 |
| 12 mos. | Great Northern..... | 8,188 | 77,150,514 | 4,977,601 | 89,625,105 | 8,660,007 | 13,623,780 | 2,152,655 | 29,098,139 | 56,880,722 | 63.5 | 32,744,383 | 24,901,857 | 27,218,945 |

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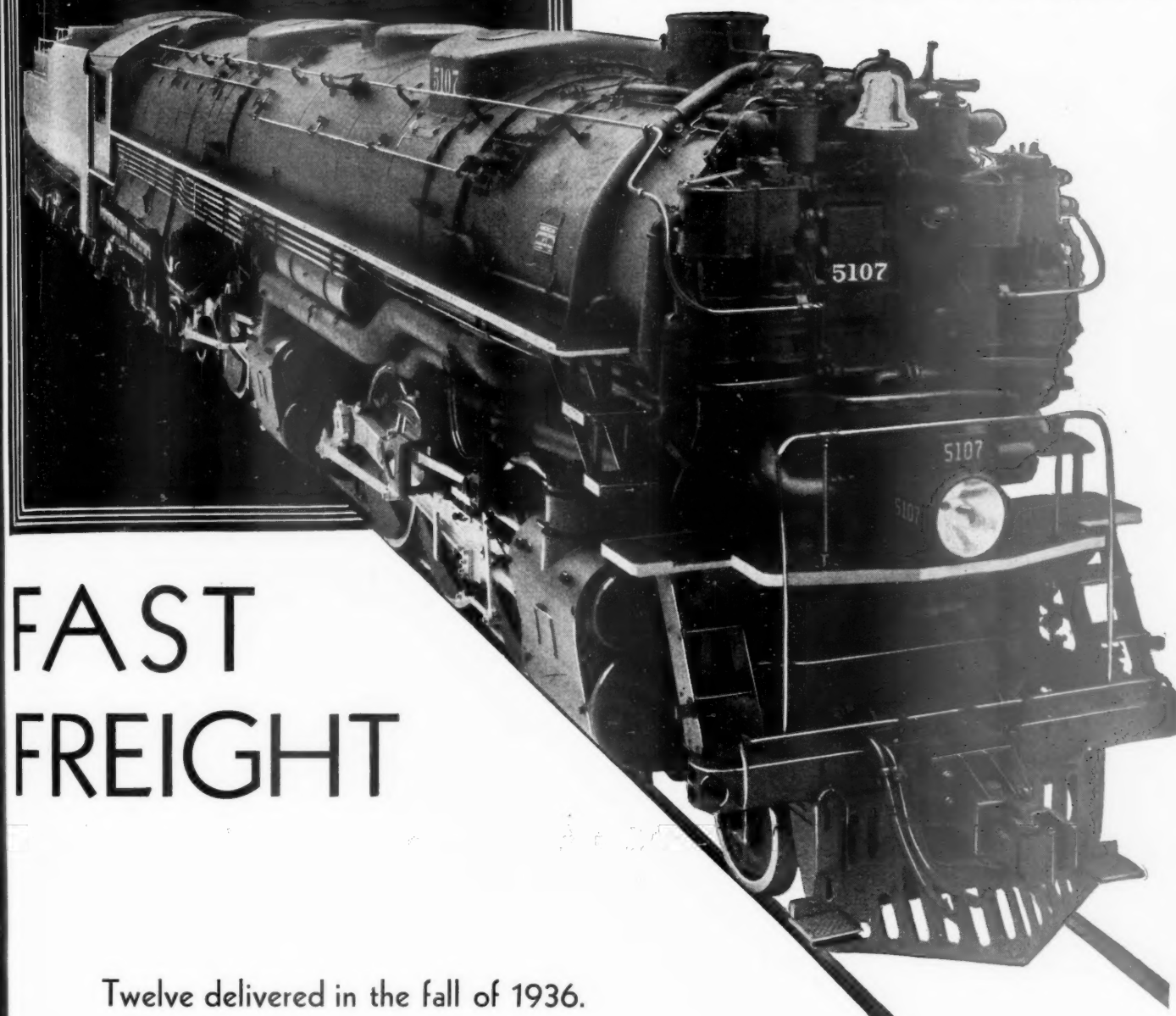
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1936—CONTINUED

| Name of road | Av. mileage operated during period | Operating revenues | | | | Operating expenses | | | | Operating ratio | Net from railway operation | Net railway operating income | | |
|---------------------------------------|------------------------------------|--------------------|------------|-------------|--------------|--------------------|------------|-----------|----------------|-----------------|----------------------------|------------------------------|---------------------------|--------------------------|
| | | Freight | Passenger | Total | (inc. misc.) | Way and structures | Equipment | Traffic | Transportation | | | Operating income | After depr. & retir. 1936 | Before depr. & ret. 1935 |
| Green Bay & Western..... | Dec. 234 | \$147,745 | \$783 | \$153,100 | | \$30,876 | \$21,817 | \$7,010 | \$41,220 | 68.5 | \$48,216 | \$38,173 | \$9,805 | \$34,372 |
| Green Bay & Western..... | 12 mos. 234 | 1,550,447 | 9,306 | 1,624,122 | | 378,560 | 198,266 | 72,081 | 1,237,062 | 76.1 | 387,060 | 266,050 | 133,036 | 226,169 |
| Gulf & Ship Island..... | Dec. 259 | 93,063 | 9,609 | 115,446 | | 15,931 | 12,777 | 3,479 | 63,938 | 89.4 | 12,259 | 30,207 | 38,455 | 35,083 |
| Gulf & Ship Island..... | 12 mos. 259 | 1,185,778 | 108,319 | 1,443,901 | | 222,361 | 219,100 | 40,254 | 714,811 | 87.7 | 177,398 | 31,855 | 146,384 | 100,149 |
| Gulf, Mobile & Northern..... | Dec. 936 | 548,260 | 34,549 | 609,449 | | 55,994 | 86,967 | 40,528 | 172,184 | 62.03 | 231,403 | 164,403 | 96,262 | 113,905 |
| Gulf, Mobile & Northern..... | 12 mos. 936 | 6,685,592 | 321,795 | 7,292,909 | | 723,050 | 1,035,405 | 444,038 | 1,914,784 | 61.27 | 2,824,315 | 2,173,536 | 1,412,604 | 1,646,080 |
| Illinois Central..... | Dec. 4,966 | 7,495,787 | 965,543 | 9,128,281 | | 625,561 | 1,627,312 | 234,247 | 3,289,682 | 67.9 | 2,928,162 | 2,244,766 | 2,021,014 | 3,526,432 |
| Illinois Central..... | 12 mos. 4,973 | 81,990,037 | 9,200,930 | 98,843,934 | | 8,818,762 | 21,668,686 | 2,718,988 | 36,649,593 | 75.6 | 24,072,509 | 16,577,562 | 14,087,852 | 20,600,398 |
| Yazoo & Mississippi Valley..... | Dec. 1,619 | 1,383,656 | 121,894 | 1,602,502 | | 87,134 | 169,095 | 34,436 | 510,852 | 53.5 | 744,595 | 597,276 | 525,307 | 565,951 |
| Yazoo & Mississippi Valley..... | 12 mos. 1,619 | 14,102,230 | 995,524 | 16,111,613 | | 1,179,776 | 2,447,158 | 396,270 | 5,795,698 | 65.1 | 5,629,043 | 4,004,234 | 2,911,164 | 3,436,641 |
| Illinois Central System..... | Dec. 6,586 | 8,879,443 | 1,087,437 | 10,730,783 | | 712,695 | 1,796,407 | 268,683 | 3,800,534 | 65.8 | 3,672,757 | 2,844,659 | 2,560,724 | 3,133,820 |
| Illinois Central System..... | 12 mos. 6,592 | 96,092,267 | 10,196,454 | 114,955,547 | | 9,998,538 | 24,115,844 | 3,115,258 | 42,445,291 | 74.2 | 29,701,552 | 20,570,353 | 17,115,016 | 24,153,039 |
| Illinois Terminal..... | Dec. 504 | 439,740 | 75,959 | 554,628 | | 42,893 | 71,420 | 16,305 | 172,972 | 58.01 | 232,899 | 185,326 | 157,702 | 176,581 |
| Illinois Terminal..... | 12 mos. 510 | 4,692,762 | 828,302 | 5,998,627 | | 619,478 | 810,057 | 190,639 | 1,925,887 | 62.69 | 2,238,273 | 1,770,660 | 1,531,948 | 1,759,969 |
| Kansas City Southern..... | Dec. 878 | 1,081,186 | 21,746 | 1,102,932 | | 116,889 | 247,135 | 49,122 | 325,791 | 66.4 | 409,553 | 321,053 | 253,060 | 282,371 |
| Kansas City Southern..... | 12 mos. 878 | 12,315,663 | 227,197 | 13,831,778 | | 1,219,844 | 2,281,604 | 580,639 | 3,822,877 | 63.1 | 5,105,534 | 3,968,334 | 3,133,292 | 3,481,535 |
| Kansas, Oklahoma & Gulf..... | Dec. 326 | 212,139 | 667 | 215,336 | | 33,794 | 10,315 | 10,956 | 53,555 | 45.7 | 116,971 | 92,907 | 72,145 | 75,965 |
| Kansas, Oklahoma & Gulf..... | 12 mos. 326 | 2,441,936 | 6,623 | 2,480,555 | | 339,334 | 248,648 | 98,231 | 1,169,727 | 47.2 | 1,310,828 | 1,043,987 | 809,019 | 834,090 |
| Lake Superior & Ishpeming..... | Dec. 160 | 43,392 | 167 | 46,040 | | 20,881 | 32,534 | 781 | 24,009 | 184.1 | 38,732 | 95,500 | 95,329 | 82,051 |
| Lake Superior & Ishpeming..... | 12 mos. 160 | 2,550,711 | 1,295 | 2,931,809 | | 335,489 | 315,974 | 8,097 | 480,879 | 41.4 | 1,717,105 | 1,208,523 | 1,195,756 | 1,354,874 |
| Lehigh & Hudson River..... | Dec. 96 | 134,849 | 100 | 135,688 | | 7,663 | 22,189 | 4,004 | 47,170 | 65.4 | 46,982 | 33,672 | 22,939 | 26,615 |
| Lehigh & Hudson River..... | 12 mos. 96 | 1,556,551 | 1,340 | 1,566,897 | | 161,703 | 220,686 | 44,435 | 563,826 | 68.7 | 489,682 | 332,366 | 187,533 | 232,421 |
| Lehigh & New England..... | Dec. 215 | 323,169 | 237 | 325,612 | | 36,684 | 72,698 | 7,949 | 119,300 | 77.1 | 74,456 | 71,875 | 53,290 | 102,746 |
| Lehigh & New England..... | 12 mos. 219 | 3,928,203 | 3,168 | 3,962,591 | | 419,245 | 864,109 | 75,444 | 1,393,171 | 74.0 | 1,028,977 | 801,945 | 807,313 | 1,024,746 |
| Lehigh Valley..... | Dec. 1,322 | 4,164,175 | 266,226 | 4,724,119 | | 170,921 | 743,324 | 112,400 | 1,847,451 | 64.5 | 1,677,076 | 851,853 | 677,368 | 866,775 |
| Lehigh Valley..... | 12 mos. 1,332 | 43,276,066 | 2,670,937 | 49,156,379 | | 3,043,975 | 8,466,020 | 1,354,540 | 20,410,967 | 71.7 | 13,908,733 | 10,837,657 | 8,700,958 | 10,990,286 |
| Louisiana & Arkansas..... | Dec. 606 | 438,107 | 9,927 | 464,912 | | 54,985 | 7,810 | 2,809 | 151,777 | 71.5 | 132,486 | 116,544 | 88,336 | 103,353 |
| Louisiana & Arkansas..... | 12 mos. 606 | 5,223,023 | 106,757 | 5,537,818 | | 720,407 | 802,679 | 346,539 | 1,654,799 | 67.8 | 1,783,113 | 1,370,233 | 1,090,601 | 1,263,641 |
| Louisiana, Arkansas & Texas..... | Dec. 255 | 94,482 | 257 | 99,419 | | 22,610 | 15,808 | 4,893 | 44,825 | 95.4 | 4,617 | 5,021 | 11,823 | 11,055 |
| Louisiana, Arkansas & Texas..... | 12 mos. 255 | 1,189,789 | 3,129 | 1,252,844 | | 327,275 | 123,867 | 56,436 | 509,718 | 85.9 | 176,274 | 124,930 | 71,486 | 62,457 |
| Louisville & Nashville..... | Dec. 1,010 | 943,336 | 119,873 | 1,182,306 | | 87,693 | 174,213 | 13,133 | 414,419 | 61.8 | 451,095 | 389,536 | 295,577 | 338,973 |
| Louisville & Nashville..... | 12 mos. 1,043 | 10,049,320 | 1,020,846 | 12,222,116 | | 2,037,550 | 2,048,348 | 140,237 | 4,545,628 | 75.7 | 2,970,403 | 2,186,031 | 1,467,937 | 1,998,908 |
| Midland Valley..... | Dec. 354 | 130,361 | 32 | 132,959 | | 23,770 | 7,810 | 2,858 | 45,886 | 67.3 | 43,406 | 33,150 | 22,173 | 24,313 |
| Midland Valley..... | 12 mos. 354 | 1,510,415 | 183 | 1,534,719 | | 209,876 | 147,901 | 28,618 | 382,129 | 54.3 | 701,830 | 593,868 | 485,878 | 511,441 |
| Minneapolis & St. Louis..... | Dec. 1,530 | 652,701 | 14,309 | 703,365 | | 96,175 | 92,226 | 45,324 | 303,074 | 81.8 | 128,314 | 102,686 | 42,849 | 69,431 |
| Minneapolis & St. Louis..... | 12 mos. 1,570 | 8,364,175 | 149,778 | 8,955,364 | | 1,200,099 | 1,413,514 | 453,167 | 3,601,126 | 79.5 | 1,839,922 | 1,336,424 | 725,722 | 1,062,804 |
| Minneapolis, St. Paul & S. Marie..... | Dec. 4,301 | 1,626,035 | 122,638 | 1,946,759 | | 276,858 | 346,476 | 66,113 | 923,334 | 88.4 | 225,299 | 79,846 | 44,661 | 59,537 |
| Minneapolis, St. Paul & S. Marie..... | 12 mos. 4,296 | 23,093,644 | 1,271,040 | 26,551,952 | | 3,609,349 | 4,438,462 | 719,418 | 10,737,763 | 78.5 | 5,706,903 | 3,728,435 | 2,005,933 | 3,231,757 |
| Duluth, South Shore & Atlantic..... | Dec. 549 | 163,491 | 21,275 | 199,526 | | 38,880 | 33,991 | 4,660 | 85,853 | 84.8 | 30,410 | 17,853 | 13,564 | 20,958 |
| Duluth, South Shore & Atlantic..... | 12 mos. 550 | 2,500,422 | 159,193 | 2,913,311 | | 409,470 | 465,000 | 52,109 | 1,033,110 | 69.3 | 893,198 | 750,506 | 637,194 | 729,103 |
| Spokane International..... | Dec. 163 | 46,528 | 1,993 | 54,973 | | 11,327 | 4,490 | 2,037 | 20,787 | 79.8 | 11,083 | 7,965 | 4,333 | 5,973 |
| Spokane International..... | 12 mos. 163 | 686,611 | 17,418 | 773,697 | | 170,495 | 79,152 | 22,696 | 256,409 | 75.1 | 192,585 | 152,617 | 103,870 | 122,261 |
| Mississippi Central..... | Dec. 150 | 75,672 | 2,407 | 80,884 | | 18,114 | 14,143 | 7,222 | 49,776 | 117.9 | 14,407 | 22,369 | 27,889 | 25,660 |
| Mississippi Central..... | 12 mos. 150 | 873,584 | 19,154 | 920,228 | | 163,551 | 136,381 | 82,564 | 717,926 | 78.0 | 202,302 | 153,560 | 108,502 | 135,412 |
| Missouri-Arkansas..... | Dec. 364 | 957,249 | 1,266 | 929,299 | | 30,283 | 13,142 | 5,925 | 32,840 | 93.2 | 6,336 | 893 | 11,626 | 10,758 |
| Missouri-Arkansas..... | 12 mos. 364 | 957,249 | 15,817 | 1,043,008 | | 261,343 | 127,702 | 59,584 | 349,998 | 82.2 | 185,529 | 139,594 | 34,261 | 44,378 |
| Missouri-Illinois..... | Dec. 205 | 121,545 | 690 | 124,013 | | 28,592 | 10,946 | 2,491 | 36,587 | 68.5 | 39,121 | 37,125 | 23,779 | 26,916 |
| Missouri-Illinois..... | 12 mos. 205 | 1,148,500 | 8,370 | 1,178,415 | | 254,309 | 148,361 | 30,521 | 381,907 | 74.5 | 300,516 | 238,085 | 103,365 | 143,431 |
| Missouri-Kansas-Texas Lines..... | Dec. 3,293 | 2,188,932 | 228,422 | 2,690,216 | | 265,813 | 249,547 | 109,909 | 900,634 | 62.1 | 1,019,546 | 929,660 | 716,645 | 789,466 |
| Missouri-Kansas-Texas Lines..... | 12 mos. 3,293 | 26,017,454 | 2,446,813 | 31,307,599 | | 3,765,629 | 5,101,705 | 1,388,702 | 10,702,055 | 72.4 | 8,645,898 | 6,864,246 | 4,323,240 | 5,505,334 |
| Missouri Pacific..... | Dec. 7,171 | 7,029,508 | 445,495 | 8,109,861 | | 1,083,168 | 1,568,311 | 252,797 | 2,828,697 | 74.5 | 2,071,705 | 1,703,132 | 1,148,555 | 1,513,583 |
| Missouri Pacific..... | 12 mos. 7,219 | 78,024,008 | 5,123,959 | 90,421,931 | | 12,357,278 | 17,550,585 | 2,697,900 | 31,784,986 | 75.5 | 22,500,986 | 17,344,356 | 11,977,560 | 15,290,986 |
| Gulf Coast Line..... | Dec. 1,763 | 1,039,857 | 48,408 | 1,162,768 | | 143,565 | 208,982 | 44,519 | 359,630 | 69.74 | 351,828 | 11,977,560 | 21,857,436 | 43,759 |
| Gulf Coast Line..... | 12 mos. 1,763 | 11,109,418 | 456,333 | 12,542,708 | | 1,915,889 | 2,281,095 | 537,802 | 3,909,733 | 75.55 | 3,017,442 | 2,348,966 | 991,889 | 1,400,091 |

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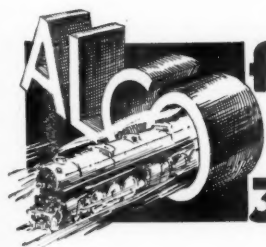
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| Diameter of Drivers, | 69 inches |
| Boiler Pressure, | 250 pounds |
| Maximum Tractive Power, | 104,500 pounds |



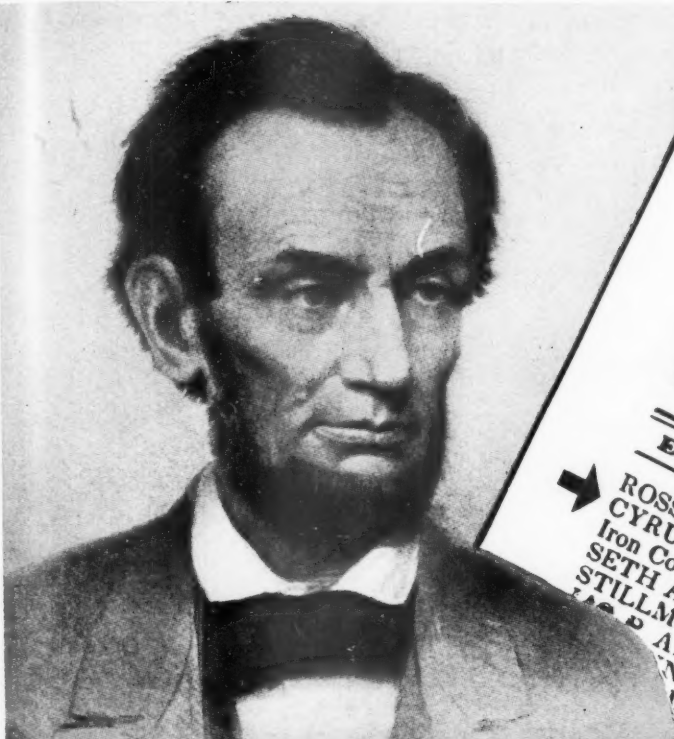
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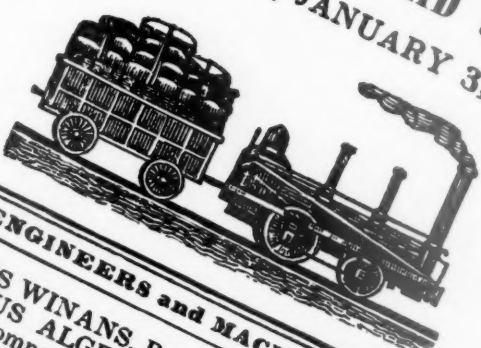
REVENUES AND EXPENSES OF RAILWAYS

THE YEAR 1936—CONTINUED

[illegible]



AMERICAN RAILROAD JOURNAL
SATURDAY, JANUARY 3, 1846.



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→ **ROSS WINANS**, Baltimore, Md.
CYRUS ALGER, Engineer, South Boston
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*When Lincoln
was in Congress*

ALTHOUGH only a modest listing, it was nevertheless an announcement that Cyrus Alger, a predecessor of the Hunt-Spiller Manufacturing Corporation, was ready to furnish castings suitable for Railroad Service.

Another coincidence in connection with the President whose birthday the nation celebrates this week is that in 1809, the same year Lincoln was born, Cyrus Alger began his development of the *Air Furnace* Process for manufacturing a special material for Ordnance Service, the results of which produced the metallurgical term "*Air Furnace Gun Iron*."

This was the first step in the constant development of HUNT-SPILLER *Air Furnace* GUN IRON—a wear-resisting material which has since that time been contributing to the efficiency and economy of locomotive operation.

Complete applications of the parts listed below assure maximum economies.

HUNT-SPILLER MFG. CORPORATION

V.W. Ellet Pres. & Gen. Mgr. / E.J. Fuller Vice-President

Office & Works

383 Dorchester Ave.

South Boston, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P.Q.

Export Agent for Latin America:

International Rwy. Supply Co., 30 Church Street, New York, N. Y.

H S G I

Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished For
Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER GUN IRON

Air Furnace

9,092,215
2,045,514
5,880,915
5,652,797
804,503
9,117,125
79.5
80.9
3,346,446
38,810,424
1,569,987
17,225,003
114,754
1,354,256
11,214,441
511,890
6,879,018
4,211,049
348,938
3,428,601
3,441,423
40,389,219
4,926
4,928
12 mos.
12 mos.
St. Louis-San Francisco.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1936—CONTINUED

| Name of road | Av. mileage operated during period | Operating revenues | | | | Maintenance of | | | Operating expenses | | | Net from operation | Net railway operating income | | |
|---|------------------------------------|--------------------|------------------------|------------|--------------------|----------------|-----------|------------------|--------------------|-----------------|------------------|--------------------|------------------------------|--------------------------|---------------------|
| | | Freight | Passenger (inc. misc.) | Total | Way and structures | Equipment | Traffic | Trans- portation | Total | Operating ratio | Operating income | | After depr. & retir. 1936 | Before depr. & ret. 1935 | Before depr. & ret. |
| Fort Worth & Rio Grande.....Dec. | 233 | \$38,682 | \$921 | \$39,603 | \$24,363 | 314,675 | 77,422 | 604,854 | 1,326,595 | 71.2 | 446,788 | 319,224 | 319,224 | 350,493 | 369,932 |
| St. Louis, San Francisco & Texas.....Dec. | 233 | 365,656 | 10,659 | 376,315 | 19,363,508 | 2,461,053 | 909,684 | 5,852,143 | 13,199,348 | 68.2 | 5,037,043 | 3,271,248 | 2,694,318 | 3,876,744 | 4,458,589 |
| St. Louis, San Francisco & Texas.....Dec. | 261 | 1,300,711 | 10,001 | 1,310,712 | 3,092,329 | 7,982,739 | 1,851,994 | 14,279,589 | 31,820,609 | 83.0 | 3,985,114 | 2,920,583 | 1,501,943 | 4,805,358 | 4,805,358 |
| St. Louis, San Francisco & Texas.....Dec. | 261 | 1,300,711 | 10,001 | 1,310,712 | 3,092,329 | 7,982,739 | 1,851,994 | 14,279,589 | 31,820,609 | 83.0 | 3,985,114 | 2,920,583 | 1,501,943 | 4,805,358 | 4,805,358 |
| Southern Railway.....Dec. | 6,639 | 6,788,451 | 8,747,495 | 15,535,946 | 846,212 | 1,463,083 | 161,708 | 3,066,160 | 5,880,002 | 67.2 | 2,126,929 | 1,739,794 | 1,739,794 | 1,791,771 | 2,010,429 |
| Alabama Great Southern.....Dec. | 315 | 422,373 | 69,314 | 491,687 | 11,273,741 | 17,437,664 | 1,784,714 | 33,266,298 | 67,416,701 | 70.0 | 28,857,797 | 19,298,273 | 14,290,530 | 22,546,088 | 22,546,088 |
| Cinn., New Orleans & Texas Pacific.....Dec. | 336 | 1,202,350 | 143,247 | 1,345,597 | 135,754 | 283,201 | 23,231 | 355,653 | 855,296 | 58.7 | 601,737 | 502,337 | 458,698 | 248,499 | 508,731 |
| Georgia Southern & Florida.....Dec. | 397 | 1,308,839 | 56,483 | 1,365,322 | 2,037,713 | 3,172,219 | 316,756 | 3,945,223 | 10,058,075 | 60.2 | 6,646,608 | 5,315,671 | 4,936,368 | 3,583,309 | 5,536,058 |
| New Orleans & Northeastern.....Dec. | 204 | 207,822 | 24,266 | 232,088 | 22,553 | 38,108 | 5,458 | 87,872 | 165,544 | 65.5 | 87,322 | 66,989 | 43,536 | 20,904 | 49,623 |
| Northern Alabama.....Dec. | 100 | 70,611 | 2,432 | 73,043 | 345,037 | 426,076 | 63,347 | 867,588 | 1,831,840 | 65.9 | 948,279 | 666,279 | 406,102 | 194,512 | 479,179 |
| Southern Pacific.....Dec. | 8,772 | 12,491,444 | 2,050,898 | 14,542,342 | 1,015,931 | 2,101,168 | 335,289 | 5,832,218 | 10,342,432 | 59.2 | 7,130,232 | 6,499,978 | 5,780,469 | 1,628,227 | 6,261,937 |
| Southern Pacific Steamship Lines.....Dec. | | 553,780 | 11,387 | 565,167 | 14,060,803 | 24,808,634 | 3,794,768 | 57,576,841 | 110,331,464 | 70.7 | 45,754,140 | 36,212,063 | 28,399,940 | 17,493,420 | 34,127,116 |
| Texas & New Orleans.....Dec. | 4,429 | 3,623,394 | 316,927 | 3,940,321 | 478,888 | 664,814 | 127,615 | 1,297,338 | 2,833,753 | 64.5 | 1,561,688 | 1,414,231 | 1,177,714 | 475,192 | 1,308,473 |
| Spokane, Portland & Seattle.....Dec. | 946 | 715,994 | 44,783 | 760,777 | 5,571,049 | 7,827,320 | 1,461,651 | 13,981,970 | 31,640,367 | 73.4 | 10,315,342 | 7,802,716 | 5,691,986 | 2,889,330 | 7,344,927 |
| Tennessee Central.....Dec. | 286 | 198,040 | 5,696 | 203,736 | 23,277 | 27,027 | 5,491 | 79,315 | 144,839 | 66.5 | 72,894 | 66,262 | 49,260 | 22,312 | 55,208 |
| Texas & Pacific.....Dec. | 1,948 | 2,306,880 | 63,641 | 2,370,521 | 319,629 | 434,126 | 79,821 | 829,731 | 1,784,842 | 71.0 | 729,849 | 639,282 | 471,851 | 410,331 | 543,434 |
| Texas Mexican.....Dec. | 162 | 103,103 | 378 | 103,481 | 2,765,970 | 28,086,677 | 941,613 | 8,606,529 | 19,472,453 | 69.3 | 8,614,224 | 6,733,049 | 5,278,459 | 5,080,987 | 6,444,886 |
| Toledo, Peoria & Western.....Dec. | 239 | 206,324 | 4 | 206,328 | 1,150,181 | 1,150,181 | 205,608 | 3,935,288 | 9,742,453 | 68.5 | 763,428 | 676,764 | 309,186 | 216,961 | 467,416 |
| Union Pacific System.....Dec. | 9,918 | 11,713,749 | 1,425,063 | 13,138,812 | 1,075,375 | 2,552,978 | 324,736 | 4,410,640 | 9,134,901* | 61.4 | 5,746,007 | 4,582,000 | 3,893,026* | 2,098,001 | 4,573,930 |
| Utah.....Dec. | 111 | 123,350 | | 123,350 | 15,090 | 46,015 | 365 | 30,470 | 96,000 | 77.5 | 27,800 | 13,700 | 14,065 | 50,385 | 24,007 |
| Virginian.....Dec. | 619 | 1,571,856 | 5,139 | 1,576,995 | 105,074 | 268,370 | 19,085 | 235,382 | 659,543 | 40.4 | 974,404 | 854,404 | 939,123 | 694,326 | 1,033,836 |
| Wabash.....Dec. | 2,446 | 3,962,031 | 257,738 | 4,219,769 | 17,640,017 | 22,699,471 | 229,682 | 2,881,169 | 7,865,125 | 44.6 | 9,774,892 | 8,319,892 | 7,240,269 | 7,240,269 | 10,192,774 |
| Ann Arbor.....Dec. | 293 | 339,249 | 3,350 | 342,600 | 3,350 | 3,350 | 1,870 | 158,440 | 254,900 | 72.3 | 97,659 | 79,666 | 66,776 | 18,900 | 86,699 |
| Western Maryland.....Dec. | 293 | 3,777,655 | 40,424 | 3,818,079 | 3,962,735 | 330,914 | 1,877,125 | 1,672,125 | 3,775,959 | 80.2 | 783,776 | 575,032 | 428,221 | 482,558 | 668,720 |
| Western Pacific.....Dec. | 882 | 1,441,105 | 8,059 | 1,449,164 | 1,480,263 | 169,674 | 38,584 | 3,552,637 | 8,952,615 | 60.1 | 5,953,026 | 5,092,214 | 4,427,673 | 4,427,673 | 6,010,958 |
| Wheeling & Lake Erie.....Dec. | 512 | 1,468,283 | 22,946 | 1,491,229 | 16,298,271 | 21,511,651 | 440,427 | 3,972,512 | 10,464,047 | 64.2 | 5,834,224 | 4,635,795 | 4,784,216 | 4,107,677 | 5,915,190 |
| Wichita Falls & Southern.....Dec. | 203 | 34,510 | 20 | 34,530 | 1,452,690 | 1,452,690 | 54,316 | 508,712 | 969,985 | 66.8 | 482,705 | 412,640 | 312,205 | 66,007 | 363,987 |
| Wichita Falls & Southern.....Dec. | 203 | 34,510 | 20 | 34,530 | 1,452,690 | 1,452,690 | 54,316 | 508,712 | 969,985 | 66.8 | 482,705 | 412,640 | 312,205 | 66,007 | 363,987 |

* Includes credits aggregating \$819,882 for charges rendered by Union Pac. R. R. Co. in year 1936. No similar credits last year.